TWENTY-SECOND YEAR OF PUBLICATION

Industrial FINISHING

W. H. ROHR, Editor P. C. BARDIN, Associate Editor

Vol. XXII, No. 10 AUGUST, 1946 $2.00 a Year

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Practical Publications, Inc., 1142 N. Meridian Street, Indianapolis 4, Ind.

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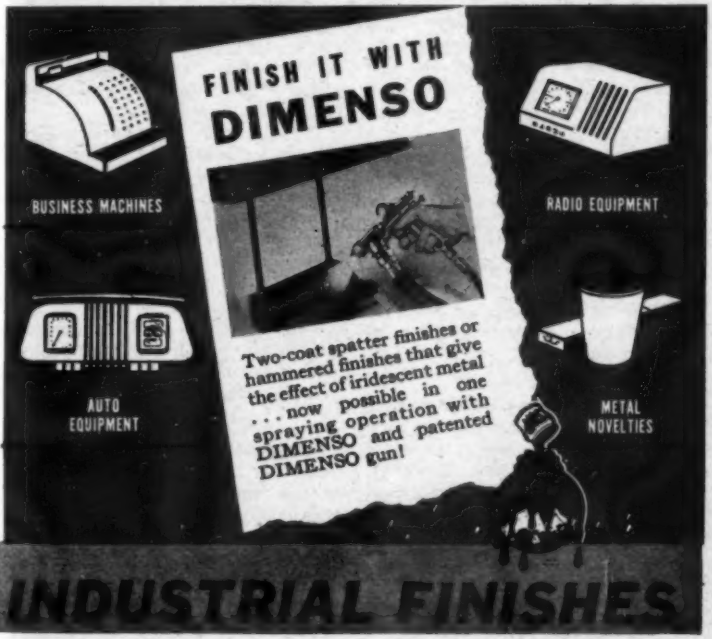
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INDUSTRIAL FINISHES

By Lawrence H. Singer

Boom and Bust?—The big question mark facing every business firm today concerns the duration of the current seller's market. Leon Henderson, former OPA boss, recently warned that we are approaching a return of the old inflation spiral, with the outlook pointing to "a short boom and a long bust."

"At present time," Henderson declared, "the Government does not have firm enough control over many factors—such as taxation, raw materials and savings." He fears that a steady rise in living costs will inevitably be followed by renewed demands for wage increases and another wave of crippling strikes.

* * *

The Other Side—Many writers have been predicting buyers' strikes, and have begun to draw comparisons with 1920. However, *Business Week* feels that the parallel doesn't stand up. It points out that there is a real need for inventory accumulation now, whereas the boom of 1919 proved to be merely speculative.

Furthermore, continues this this authoritative journal, prices are up less today, so there is less tendency for buyers to strike. Also, our people have piled up vast quantities of bonds and bank deposits to pay for the goods we are turning out.

* * *

Forecasting the Future—We have been examining a significant chart prepared by Harry W. Alexander, the well-known New York industrial consultant. Based on a study by the Standard and Poor financial service, Alexander estimates the ability of pent-up demand to keep business humming as follows: automobile and parts manufacturing—top speed for four years; building construction—ten years of prosperity; electrical equipment—one or two years; farm equipment—three years; office equipment—three years; textiles and apparel—one and one-half years; tires—two years.

As if in answer to *Business Week*, Alexander adds this gloomy comment: "Everybody knows that some time—in six months, a year, two years—order backlogs will be wiped out, and sellers will once again have to look for markets. All we have to do is to read yesterday's newspapers.

"In August 1920, numerous plants which had been swamped 60 days previous were begging for orders—*only 60 short days.*"

* * *

Finished Homes—An interesting study by the Department of Commerce indicates that numerous manufacturers of prefabricated houses are planning to set up local sales dealerships which will be patterned after the automobile industry. *(Continued on page 9)*

The dealer would sell and erect the dwelling on a lot furnished by the buyer, assist in financing the mortgage, and service the house for a specific period.

Many towns still restrict the erection of prefabricated dwellings. This handicap remains one of the greatest barriers to the continued advancement of factory-made homes.

* * *

The Red Menace—One of the most thought-provoking reports of the year has come to the writer's attention. It is a study of Communism in the American labor movement, which was prepared under the direction of L. C. Morrow, editor of *Factory Management and Maintenance*. It seems to me that this report deserves the careful scrutiny of every alert industrial executive . . . The magazine emphasizes the point that Labor's best brains are opposed to Communism, and that it is necessary for business to work closely with regular labor leaders to combat radicalism.

* * *

Annual Wage—In the view of Ira Mosher, Chairman of the board of the National Association of Manufacturers, continuous employment, based on an annual wage for workers, is "the most powerful medium that management has for improving employer-employee relations." According to this outstanding spokesman of industry, employment safeguards are more valuable than any synthetic security that can be offered by the Government.

Mosher is convinced that there are few American industries which cannot do a better job of stabilizing employment. If our major manufacturing organizations were

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to undertake such a program, he points out, millions of workers all along the line would get steadier employment.

* * *

Engineers Needed—The return to an era of intensive business competition will emphasize the urgent necessity of recruiting more and more industrial engineers in order to reduce manufacturing outlay. So says William R. Donnell, former deputy director of the War Production Board. He declares that there is already a shortage of almost 5000 qualified experts in this country.

Donnell points out that many plant executives look upon industrial engineers merely as men who devote themselves to problems of time study. This is a sad delusion, he insists; other prime duties of a competent industrial engineer, are to reduce waste, secure correct utilization of new machinery and equipment, and to draw up scientific wage-incentive plans.

Too many employers, adds Donnell, look upon wage incentive plans in terms of a "speed-up." It is the task of an expert industrial engineer to develop techniques which are thoroughly acceptable to the workers.

* * *

Economy Plea—From the standpoint of Alex Taub, New York consulting engineer, many motor manufacturers are worried over the possibility that the sharp increase in retail automobile prices may take passenger cars out of the classification of necessities and transform them into luxuries.

Taub contends that there is urgent need for increased economy in car construction and performance. He feels that American

(Continued on page 98)

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Finishing

By H. B. CRAFT

Supervisor of Research and Quality Control Laboratory of the Mengel Co., Inc., Furniture Division, describes and illustrates the equipment, methods and materials required for conveyorized furniture finishing from the white to the final polish. This, the first of two articles, deals with equipment, conveyor layout and modern air conditioning.

Furniture by MODERN METHODS

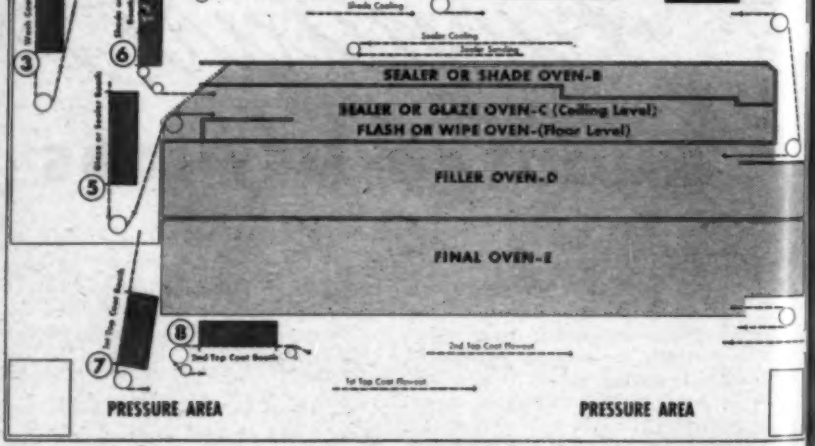
THE DEMAND for high speed production in furniture has made conveyorized finishing practically a necessity in modern manufacturing plants. It is a well known fact that a conveyor, in conjunction with a forced drying system, invariably shortens the finishing cycle, permits an increase of up to 200% in production without any increase in finishing man-hours or floor space, and simplifies the problem of production control. The success of the system depends primarily upon two factors, namely, engineering and equipment.

In the beginning, long range planning is of utmost importance. First, the system should be designed with sufficient flexibility to take care of present contemplated production in speed, volume, size and weight of pieces, available finishing materials and finish requirements, as well as possible future changes in part or in whole. In planning the finishing conveyor it should be remembered that some products can be processed more economically off a conveyor, and while these products may not be in the present line, some of them may be included in the future. Therefore sufficient floor space in the vicinity of the productive sections of the conveyor should be allowed for auxiliary benches, spray booths, or special processing equipment. Mengel's finishing room occupies 39,000-sq. ft. of floor space on two floors.

The principal conveyor is a monorail trolley type—an overhead chain operating under a 4-in. I-beam. There is 9,153-ft. of it in operation at the plant. It has a variable speed range of 4-ft., to 28-ft. per minute. Operating at a speed of 14-ft. a minute, and with carriers spaced on 6-ft. centers, 50 suites consisting of 3.8 pieces per suite can be finished per hour; or 1520 pieces in an 8-hour shift. To break down these suites into pieces, out of 100 suites there are:

66 Dressers	32 Vanity Benches
70 Chests	37 Night stands
100 Chests* on chest	66 Large Beds
33 Vanities	66 Small Beds

Fig. 1—Floor plan of principal portion of finishing room (on third floor) showing spray booths, work stations, ovens, and portions of the conveyor system which is on two levels, and which is so extensive that to show it all on one small drawing, with everything else, might be confusing to readers.



The finishing system which is built around this conveyor was engineered, developed and installed to meet 14 definite requirements:

1) To handle varnish, lacquer and synthetic finishes.

2) To permit use of regular finishing materials, thereby not requiring special materials at higher prices which would offset the saving in labor.

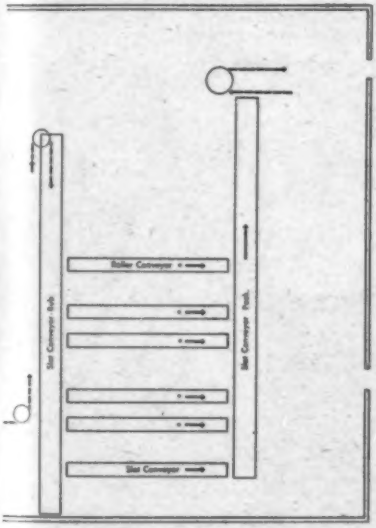
3) To be compact.

4) To produce 1500 to 2000 pieces in eight hours, depending upon type and size.

5) To permit continuous operation; that is, no stock to be removed from conveyor for drying or processing of any kind, based upon items in the present line.

6) To be of such construction that continuous operation, 24 hours a day, may be maintained if needed.

* A small chest which attaches to the top of a chest of drawers.



7) To be flexible enough to handle anything from drawer pulls to wardrobes, and so designed that changes can be made from the smallest to the largest item without stoppage.

8) To permit continuous performance of all operations, including sap staining, back staining, toner staining, wash coating, filling, sealing, glazing or shading and top coats of any type without anything being removed from the conveyor except for major repairing.

9) To permit operation of auxiliary conveyors for rubbing and packing.

10) To have definite and uniform spacing of stock to control production and to develop rhythm in all operations, and yet flexibility of spacing to permit finishing items of different sizes.

11) To be simple to operate and economical to maintain.

12) To permit being ready to rub when furniture reaches rubbing conveyor.

13) To have all air entering ovens and finish coat area filtered in order to hold repair costs to a minimum.

14) The carrier or frame on which stock is conveyed, to be so designed and constructed so that it will collect a minimum of overspray and be easy to clean.

Carrier frames are made of ⅝ x 2-in. strap iron. This is formed into the shape of an "A" with extended frame at the bottom on which a removable plywood floor supports the items to be finished. Each frame is attached to a trolley carrier by a single pin and swivel which permits the frame to be turned at any angle in the booth for spraying. Also, the single pin support allows each loaded frame to ascend and descend to different

levels without changing the position of the stock it carries. The open construction of the "A" frame offers a minimum target for overspray, and all parts are easy to clean.

Referring to Fig. 1, spray booths *1* and *2* (not shown here) are on the second floor. These two and booths *3*, *6* and *7* on the third floor are modern dry spray booths fitted with distributor plates and exhaust fans to maintain a uniform air velocity of 100-ft. per minute over the front area of the booth. All booths are equipped with Underwriters' approved exhaust fans, motors, lights and sprinkler heads.

Because of the abrasive qualities of the filler, the double booth *4* is a hydro-static precipitator type in which filler-laden air is exhausted through water (which removes the filler) by means of two exhaust fans mounted on top of the booth. Each exhaust fan is driven by a 15-hp. motor. Each fan exhausts 10,000-cu. ft. of air a minute. The air is cleaned as it is drawn through a horizontal curtain of water at the bottom of the booth, which, by suction of the fan, is pulled up through a sinuous passage formed by baffles. Clean air passes up and out at the top of the booth; the water and filler dust fall back in the tank at the bottom where the dust settles and is removed as sludge. There are no moving parts, such as pumps or other auxiliary equipment, hence there is no maintenance cost. An air velocity of 150-ft. per minute is maintained over the front area of this booth.

Spray booths *5* and *8* (Fig. 1) are the water-curtain type. Each booth is equipped with a tank and a pump which re-circulate water

Fig. 2—Case goods moving through wash coat spray booth No. 3. Notice the excellent lighting, and the atmosphere of real cleanliness everywhere.

Fig. 3—Filler booth No. 4 is a new hydro-static precipitator type of booth where "loaded" air is exhausted and filtered through water at lower front of booth. No pumps or moving parts are needed in this setup. This type of booth is adapted to spraying heavily pigmented and abrasive materials.

that flows against the back of the booth, thereby making a water curtain. This water curtain is formed by pumping the water through a header, then through small nozzles against a series of baffles through which exhaust air passes; the flowing sheet of water removes all solid matter from waste spray. The advantages of water-curtain booths for spraying lacquers and synthetic finishes include reduction in fire hazard, and cleanliness of the booth interiors, exhaust pipes, fan blades, and the outside of building and roof.

All ovens are enclosed on four sides, that is, they have top, bottom and sides, with suitable air-locks on each end to prevent heat

loss. They are constructed of interlocking metal panels inside and outside, with a 1-in. rigid insulation core. Filtered air is passed over steam coils and forced into a duct system inside the oven. This heated air, combined with a series of exhaust ducts, keeps the air in the oven in constant circulation. Steam vapor humidifiers, operating on a plus or minus 4% tolerance, prevent excessive drying of the wood furniture. Both heat and humidity are automatically controlled, and all ovens are equipped with visible recorders for both heat and moisture.

Referring to Fig. 1, the toner oven *A* on second floor (not shown here) is a high-level oven in which heated air at the rate of 6000-cu. ft. per minute is circulated and 1500-cu. ft. per minute is exhausted. Sealer or shade-oven *B* on the third floor is a double-deck oven; that is, the conveyor operates at both high and low levels inside the oven; heated air, at the rate of 10,000-cu. ft. per minute, is circulated and 2500-cu. ft. per minute is exhausted.

Sealer or glaze oven *C* is a high-level oven in which 12,300-cu.ft. of air per minute is circulated and 6,000-cu.ft. per minute is exhausted. Filler oven *D* is double-deck in which 27,600-cu.ft. per minute is circulated and 7000-cu.ft. per minute is exhausted. The final-coat oven *E* is also double deck, with 31,500-cfm. air circulation and 8,000-cfm. exhausted.

All ovens except the final-coat oven are equipped with washable

Fig. 4—Water curtained booth No. 5, where the sealer coat or glaze coat is sprayed.

Take up the slack

IN PRODUCT FINISHING

Lacquer is the finish that air-dries quickly . . . eliminates finishing-room bottlenecks . . . saves valuable man-hours . . . high-gears production. Lacquer short-cuts delivery between factory and distributor—lacquer takes up the slack. *Lacquer means speed.*

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air filters; the final coat oven has a continuous self-cleaning filter. In each case the volume of air exhausted from the ovens is replaced by filtered air drawn from outside the building, making one change of air per minute, and 15 complete changes of air per hour inside the ovens.

Part of Finishing Room Has Air Pressure Within

The room in which the two final coats are applied, in booths *7* and *8*, and the flow-out or air-drying area shown in Fig. 1, is pressurized. Booth No. *7* exhausts 27,000-cfm.; booth No. *8* exhausts 30,000-cfm. Exhaust fans in the flow-out area remove air and fumes at the rate of 16,000-cfm., making a total exhaust of 73,000-cfm. Continuous self-cleaning filters inject 78,000-cfm. of outside air, thereby creating 5,000-cfm. pressure inside the room. Cleanliness is the first requisite of a good finish.

Materials are Prepared in and Pumped from Mixing Room

A mixing and central pressure tank room is being installed at the present time. It will have three 110-gallon mixing tanks and three 110-gallon pumping tanks. Finishing material will be pumped at 60-lbs. pressure from the latter tanks, passed through a filter and into the lines leading to the various spray booths. The other equipment will include sturdy storage racks, electric hoists and two drum tumblers.

Editor's Note: This is the first of two articles by Mr. Craft. In the second, which will appear in a future issue, he describes methods, and gives detailed finishing and drying schedules.

Spray Booths That Stay Clean

BY H. R. MADSON
Industrial Engineer

WATER WASH spray booths were originally designed to prevent overspray from clogging exhaust fans, fouling exhaust stacks, and painting up the neigh-employees' cars parked in the vi-employees' cars parked in the vincinity. Numerous designs have been developed and used with varying degrees of success. Most of them, to my knowledge, require regular cleaning by overtime or special workers.

These water wash booths usually embody three features: 1) a water curtain; 2) a spray chamber; 3) water eliminator plates. The water curtain is there to catch some of the overspray. The spray chamber is intended to stop the major portion of the overspray. Eliminator plates are put in to prevent excessive loss of water through the exhaust fan.

Most water wash booths, incorporating the features just mentioned perform as intended and exhaust air, relatively paint free, to the outdoors. However, they have a tendency to leave some of the washed-out paint deposited on the curtain, in the wash chamber, and on the eliminator plates—this to a greater or lesser degree, depending on the design, and the treatment of the water.

I believe it is possible to design a water wash booth that will require very little cleaning behind the water curtain. Considerable experimental work has been done on production booths to substantiate this belief. For example, a 28-ft., conveyorized booth, in

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See for yourself . . . PERFECTION FLAT FINISH is as clear as the glass on which it is applied! A product of modern synthetic chemistry, it eliminates the cloudiness of ordinary stearated flat finishes . . . brings out the full beauty of fine woods. Available in a full range of long-lasting sheens, each equally clear, PERFECTION FLAT FINISH will force dry or air dry with a beautiful rubbed effect without orange peel—is liquor proof and water proof. Let us show you how PERFECTION FLAT FINISH will add to the beauty of your product. Phone or write for a free sample.

PERFECTION
PAINT & COLOR COMPANY
Indianapolis 2, Indiana

which four operators are spraying white synthetic enamel 1¼ mils thick, covering an average of 4074-sq.ft. of surface per hour, using 17 gallons of mixed enamel, has been in operation seven months without requiring cleaning of the water curtain, the spray chamber, the spray nozzles, or the eliminator plates. Proper treatment of the water is necessary, of course. The water has been changed and the tank cleaned every two weeks.

Train G. I.s in Technique of Product Painting

INDUSTRIAL Finishing Co. (custom finishing), 1164 W. Cermak Road, Chicago, Ill., has just installed what is believed to be the first On-the-Job Training Program for spray painters in the enameling and japanning industry. The company, established in 1923, has long been a leader in the job-shop finishing field in the Chicago area.

The new program outlines in detail various phases of training that veterans will experience and amplifies an established company policy of hiring and training young men of the community. Under the plan, veterans are offered an opportunity to learn a skilled occupation under the guidance of experienced instructors and craftsmen. Aiding in the program are company officials and representatives of paint companies and spray painting equiment manufacturers.

While in training, veterans receive Government subsistence varying in amounts determined by the veteran's dependency status. On-benefits provided for under the The-Job Training is one of the Servicemen's Adjustment Act of 1944 (The G. I. Bill of Rights).

According to F. F. Pickhardt, Vice President of Industrial Finishing Co., the greatest potential pool of skilled workers in the country is

Conveyorized spray booths and automatic spray painting equipment are being used to show latest methods and finishing techniques to G. I. trainees at plant of Industrial Finishing Co., 1164 W. Cermak Road, Chicago, Ill.

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in the World War II Veteran Group. Young men looking for opportunity will find On-The Job Training a beacon light toward job fulfillment and security.

Check War-Made Fire Extinguishers

FIRE PROTECTION authorities constantly urge proper maintenance and annual inspection of fire extinguishers to assure satisfactory operation in emergencies. The usual annual inspection may, however, be inadequate for the "EAS" devices (extinguishers approved by the Underwriters' and Factory Mutual Laboratories under Emergency Alternate Specifications) produced during the war when lack of critical materials made necessary the use of substitutes.

A comparison between some of the materials used in the standard units and those in their substandard counterparts will make clear why it is essential to be on guard against deterioration.

The shell of all 2½-gallon pressure units bearing EAS approval was made of steel instead of the copper which is used for the shell of the standard extinguishers. This was true also of one-gallon pressure type vaporizing liquid units. Steel is far more subject to corrosion than copper.

The inner cylinder of foam extinguishers, normally of tinned copper, was made of steel coated with porcelain enamel which was also used in place of brass in the construction of the pump in EAS pump tanks. Subject to cracking, porcelain enamel parts require frequent and careful inspection.

Pump packings, gaskets, and similar parts ordinarily made of natural rubber were made of synthetic rubber. Hose of all EAS extinguishers was made of reclaimed rubber. Loss of flexibility, with consequent cracking, must therefore be anticipated.

Unimportant to the proper functioning of an extinguisher but vital to its identification is the name plate. This was decalcomania on the EAS units, rather than the metal name plate which is soldered or welded to the shell or standard units. No satisfactory method for permanent application of the decals was ever found. It is therefore necessary to make sure the name plate has not peeled off or that the extinguisher type is identified by some other means so that when fire breaks out the extinguisher used will be suitable for the class of fire involved.—*Safety Research Institute.*

New Products and Services Described in Tabloid

To keep the American business man posted on all innovations now being marketed by Industry, a new 32-page tabloid entitled "New Products and Services" has just been published by the N. Y. Journal of Commerce. More than 500 new products—from warborn synthetic raw materials to the latest household gadgets—are described in this study. Copies may be had at 50 cents each from the N. Y. Journal of Commerce, 63 Park Row, New York 15, N. Y.

Air Conditioning Exposition In Cleveland This Fall

Advanced design air conditioning and refrigeration controls will have their premier showing at the "4th All Industry Refrigeration and Air Conditioning Exposition" which starts October 29 and extends through November 1, 1946 at Cleveland, Ohio. These new products will be presented by General Controls Co. of Glendale, Calif., manufacturer of automatic pressure, temperature and flow controls .

simultaneous manipulation of three media of expression: form, color, and texture. Their inter-relationship and effect on one another make them inter-dependent.

Finishes provide an important means for the creation of impressions. They represent the means whereby abstract concepts of color and texture are translated into concrete visual and tactile realities. They absorb or reflect light to the extent desired, as the situation demands. They create direct and implied tactile and visual sensations, sensations of hardness and softness. They can be used to unify surfaces and volumes or they can be used to create the proper degree of individual expression to the various components. They can be used to protect and yet reveal inherent natural patterns of materials such as choice woods.

Contemporary Designs Call for More Attention to Finish

Finishes can be used to cover unattractive materials such as low grade wood. They can be used to camouflage unattractive manufacuring processes such as using a wrinkle finish to hide spot weld marks. They can be used to introduce decorative form and pattern to surface where considerations of character and function dictate. They can be used for product identification, sales messages, and informative data. Recently they have even been introduced as a means of increasing safety and efficiency in the use of industrial machinery. When properly used, finish can contribute much to the appeal and utility of a product.

Finish becomes more important in the contemporary design than it is in the period styles. The broad surfaces, with emphasis on simplicity, focuses attention on the finish. Connotations of quality and value are dependent upon the quality and workmanship of the finish. The opportunities prevailing in handicrafts for correcting errors no longer exists. The camouflage of ornament simply isn't there.

Often these broad simple surfaces demand the relief of pattern and texture. Examples have been the light transparent finishes used in contemporary furniture which emphasize the natural grain of the wood. Wrinkle and speckled finishes have been effectively used on many products. The selection of patterned finishes involves more painstaking care and discriminative judgment than do the solid colors. The scale or size of the pattern must be right, or the results may be disastrous in spite of all the previous work that has gone into the development of the product.

New Finish Possibilities Still to be Explored

The potentialities inherent in choice of finish have been vastly expanded within the last few decades and many new possibilities remain to be explored. Much has been done in the simulation of natural patterns and textures such as photographic wood and marble reproduction, also embossed plastic that simulates leather. These have been revolting to the sensibilities of many designers, while others have rationalized their use on the basis of their economy and consistency of pattern—a factor of importance in mass production. To the writer they represent a transitory phase which will be succeeded

by conscious creation of pattern and texture treatments having a non-objective form rather than forms associated with natural patterns. The creation of such patterns and textures are limited only by the imagination and good judgment of the designer. Their effects will be controlled effects resulting from intention rather than exploitation of the accidental.

Smoking stand by Smokador Mfg. Co.

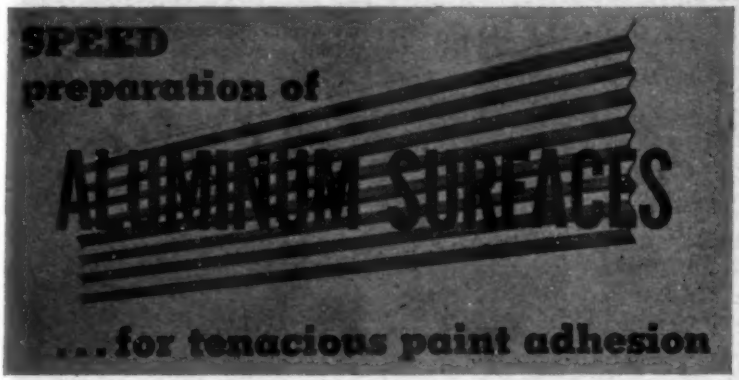
The development of increased abrasion resistance in organic finishes and oxide undercoatings has freed the designer from the limited choice of finishes embodying these properties. As a result, considerations of color harmony again predominate in the choice of finish for many products. A specific example is the use of white enamel on washing machine wringers, superseding the neutral bonderized finish previously employed.

The advent of chromium trim has led us through its increased utilization until an overabundance of it has created a case of bad visual intoxication. As we return to sobriety we will still find it useful to visually accent certain pertinent elements of design rather than spread it over a product for the camouflage of surfaces. Chromium plating is analogous to alcoholic beverages. Used moderately it can be enjoyed.

Transparent Plastics; Flock Finishes, Too

The use of transparent plastics with the reverse surface lacquered in color has combined rich sculptural qualities with surfaces that can be easily cleaned. This process has been used in nameplates and, with a trend toward increased use of plastics, it should see some far more interesting applications. One of the advantages is the degree of protection afforded the finish.

The current optimum in creating impressions of softness is realized in the use of flock. From an economy standpoint it should find extensive use in the inner surfaces of cores and all places where a soft surface is essential to prevent marring of the finish on accompanying elements. A re-



MANY organic finishers preparing surfaces of aluminum and its alloys condition strips and fabricated parts with Oakite Compound No. 36 because it reacts safely, efficiently and economically when applied by hand, or in still-tank and washing machines.

A mildly acidic liquid, this specialized Oakite surface-conditioner microscopically etches, then develops a thin adherent prosphate film on work. It retards under-coat corrosion . . . provides a fine absorptive base for good initial adhesion and permanent grippage of paint!

Oakite Compound No. 36 has light detergent properties . . . saves the cost and time of degreasing in those installations where the oil or dirt film is not too heavy or too solidly deposited.

FREE Service for Finishers!

Why not talk over details of your surface-treatment installation with your nearby Oakite Technical Service Representative? He is trained and experienced in the cleaning and conditioning of a wide variety of metals for every type of finish. Arrange for his FREE Service TODAY! Write on letterhead for Special Service Report or Oakite data sheets on any pre-cleaning and conditioning problem. No cost, no obligation!

OAKITE PRODUCTS, INC., 32F Thames St., NEW YORK 6, N. Y.
Technical Service Representatives in Principal Cities of the U. S. and Canada

OAKITE *Specialized* **CLEANING**
MATERIALS · METHODS · SERVICE · FOR EVERY CLEANING REQUIREMENT

cent application has been on the lower portion of drinking glasses to provide a moderate degree of insulation, a non-slip surface, and a relatively soothing tactile sensation to the hand. We may look for wider use in the coating of contacting surfaces on many products. The decorative possibilities of the medium remain yet to be exploited.

Factors That Influence Selection of a Finish

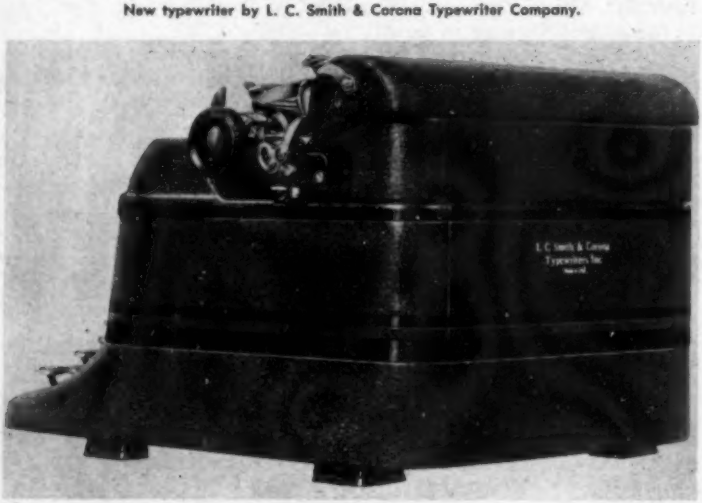
The selection of a finish is an integral part of design procedure. All of the factors and considerations affecting the form and character of the product determine the finish to be used. The life expectancy of the product, with its considerations of physical and technological obsolescence, predetermine what the finish should stand in the way of abrasion, chemical and sunlight resistance. The use of the product, the relationship to the probable personality of the anticipated average user, and the profitable environment exert a profound influence on the product. These factors predetermine the degree of harmony or contrast, the color and the textural character of the finish.

Another influence prevailing in many industries is the inertia of tradition. This inertia tends to retard original development but remains a factor that demands consideration if current sales levels are to be maintained. A finish can only be successful when it is considered in terms of all these factors and as an integral element of the product itself.

What Wrinkle Finish Did for Typewriters

Specific examples in the choice of finish are represented in the two illustrated examples of prewar products. The wrinkle finish on the

New typewriter by L. C. Smith & Corona Typewriter Company.



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The Short-cut to Better Finishing

Durable, attractive product finishing has a pre-requisite of proper metal cleaning.

Research in Detrex laboratories coupled with Detrex field experience, has made available to industrial finishers a complete source of technical data and the necessary products leading to the ultimate in metal cleaning.

Detrex field representatives analyze factors in each plant to determine the pre-finishing cleaning process most suitable to use. Because they represent a company marketing a complete line of metal-cleaning equipment and chemicals, their recommendations are unbiased.

For complete information on solvent vapor degreasing, PERM-A-CLOR and TRIAD degreasing solvents, metal parts washers and TRIAD ALKALIS and EMULSIONS, call a Detrex field representative today.

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I-131

typewriter was chosen for diffusion of light and the concealment of spot weld marks. The horizontal bands in glossy black enamel represent an application of the principles of optical illusion to reduce the apparent height of the typewriter. Actual height reduction was not possible at the time due to the large tool investment in the multitude of parts affected. The smoking stand shown represents an effort to escape the harshness of black and chromium contrast by softening the values. Gunmetal grey and satin chromium were used to create a product "that a person could live with".

Opportunities for Designers

The continued development of finishes will unfold many opportunities in the creation of new impression values in products. While these opportunities can be exploited to good advantage they also provide an equal number of opportunities for misuse with results approaching disastrous magnitude. This places a much greater responsibility upon those selecting the finish. This selection determines the eventual but inevitable fate of product at the point of sale.

Editor's Note: Mr. Onnie Mankki is a co-founder of Designers for Industry, along with Mr. Chas. H. Standish. He is a member of the American Institute of Architects and has been associated with the field of industrial design for the past 13 years. We appreciate his interest and cooperation in preparing the foregoing original article exclusively for readers of this publication. Designers for Industry, Inc., has offices at 2915 Detroit Ave., Cleveland 13, Ohio.

Detrex Opens New Branch At Grand Rapids, Mich.

Detrex Corporation, Detroit 32, Mich., producers of industrial metal cleaning equipment and chemicals, has opened its new Grand Rapids office and warehouse at 435 Ionia Ave., S. W., Grand Rapids 2, Mich. The opening of this new office is part of a general expansion program to meet the increased demand for Detrex products and services.

Wipe-On Corp. Name and Location Changed

On July 1, 1946, the Wipe-On Corp., 105 Hudson St., New York, N. Y. was merged completely with its parent company, the Brooklyn Varnish Mfg. Co., Inc. The name, "Wipe-On Corp." is being dropped and the business continues as before, but under the name, "The Industrial Research Division of the Brooklyn Varnish Mfg. Co., Inc."

This division, whose sole concern is the supply and development of specialized production finishes, is now located in the Brooklyn Varnish Mfg. Co.'s main office at 50 Jay St., Brooklyn 1, N. Y.

Increased laboratory and production facilities will enable the Industrial Research Division to offer even more extensive service to industry in the development and improvement of protective and decorative finishes. Finishes for maintenance and trade sales will be handled by the Trade Sales Division at the same address.

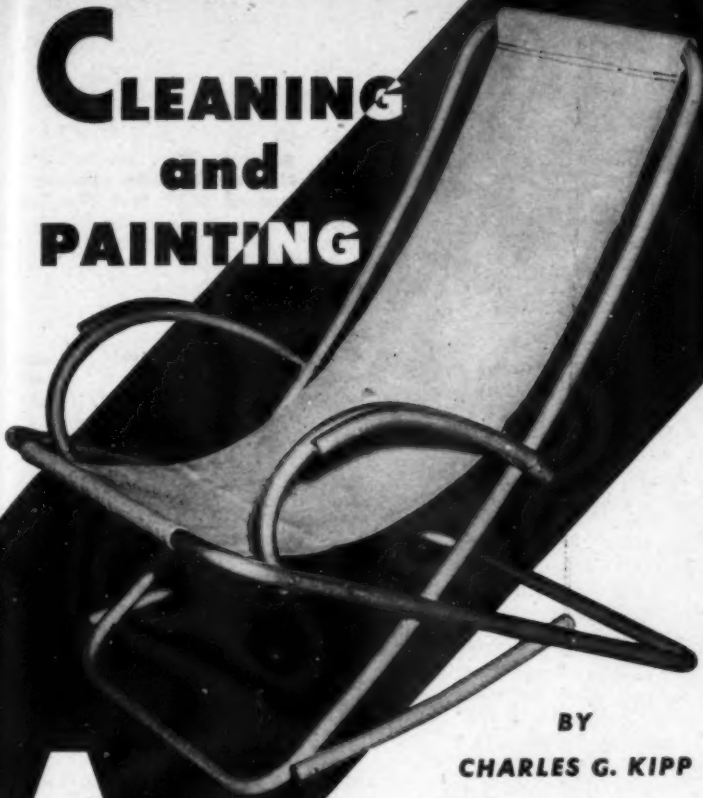
Baltimore Paint & Color to Build New Plant

The Baltimore Paint & Color Works, manufacturer of the well-known brand of "Gleem" paints, as well as varnishes, alkyds, industrial finishes, waxes, automotive specialties, and fire and waterproof compounds, announces the purchase of an 8-acre tract in the Westport section of Baltimore.

Centrally located, it is bordered by the B. & O. Railroad and the Western Maryland Railroad. Plans have been approved for the erection of one of the most modern paint plants embodying the latest automatic equipment, which will include many of the company's own innovations in design and procedure.

The 100,000 sq. ft. of factory space will house laboratories, varnish plant and warehouses. Many employee benefits will be featured, such as shower rooms, rest rooms, cafeteria, etc. Incorporated in the 8-acre tract will also be an extensive tank farm and proving grounds.

CLEANING and PAINTING



BY
CHARLES G. KIPP

ALUMINUM CHAIRS

DESIGN OF product, utility and production requirements naturally have a direct influence on finishing procedure. This applies especially to one of our products, the aluminum lawn chair which is constructed of eight separate pieces of hollow aluminium tubing.

Six of these pieces — short lengths of bent tubing—require a protective coating both outside and inside. The other 2 pieces —the back frame and seat frame —are each bent into the form of a closed rectangular loop, therefore they are coated only on the outside. The two ends of each

Fig. 1—Profile of double-end wooden stopper (a wood turning) which is inserted between the two open ends of bent loop-shaped frame made of aluminum tubing.

rectangular loop are left open during fabrication and assembly so that the canvas seat and back may be slipped over the frames. The six short lengths are left open at the ends during cleaning, coating and baking operations.

Just before the bent loop-shaped frames are delivered to the cleaning and finishing room, a double-end wooden stopper is inserted between the two open ends of each loop. This wooden stopper (Fig. 1) braces the frame so that it is firm and rigid. The wooden stopper is of such a shape (slender at the middle) that it affords a convenient "rest" or "hold" for a hook or bar to which the frames are hung for dipping. As a "stopper" it prevents cleaning solutions and lacquer from entering the interior of the tube.

Cutting and bending are the only operations performed on tubular chair parts prior to cleaning and finishing. Holes for screws and rivets are drilled after the finish is applied and baked.

Metal Cleaning; Rinsing; Acid Dip and Rinsing

Chair parts are hung on racks before delivery to the cleaning and finishing room. The racks are picked up by an electric hoist suspended from a carrier which is mounted on an overhead monorail. Loaded racks are lowered into a caustic soda bath (10° Baume test) maintained at 140° to 145° F. Time, two minutes. It is important that the temperature of the caustic soda solution does not exceed 145° F. We have found that if the solution is held at higher temperatures, the parts will dry before they can be properly rinsed. The water used for rinsing is maintained at the same temperature, namely 140° to 145° F.

Hot rinse water removes excess caustic soda from all surfaces but does not remove the black smudge deposited on the surface by reaction of the soda on aluminum. This dark colored deposit is removed by dipping the work in a nitric acid bath (28° Baume test) which is maintained at room temperature. Then follows a cold water rinse, and a final rinse in boiling water. It is necessary that the water in this final rinse be kept at 212° F. (boiling) so that upon removal from the hot water the parts will dry immediately. So much for metal cleaning and surface preparation before painting.

Special Lacquer Coating Applied by Dipping

While suspended in racks the clean tubular parts are dipped into a synthetic-base lacquer which was especially developed for: 1) adhesion to aluminum; 2) resistance to atmospheric acids, rain and sunlight, and 3) withstanding 150-hours of accelerated salt spray, which is equivalent to two years under normal salt water conditions. After a brief draining the loaded racks of dip-coated parts are moved into the oven where the coating is baked for ten minutes at 120° F.

The natural sequence of operations in the finishing room is

Cleaning up A COOL $1,000

SUN SPIRITS . . .

Cleans Parts Without Excessive Evaporation, Cooling and Rusting

Cleaning machine parts before assembling them was a double headache for a New Hampshire manufacturer. First, he was using an expensive, unstable material for cleaning. Secondly, rapid evaporation caused chilling, followed by sweat and rust.

Sun Spirits, "Job-Proved" on metal cleaning work in hundreds of plants, was adopted. This solved the problem, and made possible savings estimated at $1,000 a year.

Parts are now cleaned quickly, simply and inexpensively. They pass inspection with no rusting.

This concrete example is typical of the way in which Sun Spirits has proved its value on *the job.* To get rid of dangerous cleaning materials or unnecessary expensive equipment that requires highly trained operators, let a Sun Engineer tell you how "Job-Proved" Sun Spirits can cut the cost of most cleaning operations.

SUN OIL COMPANY • *Philadelphia 3, Pa.*

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highly important, but I want to call particular attention to the temperatures used in the various cleaning, rinsing and coating tanks. As pointed out previously, the inside of tubing which is bent to form the back frame and seat frame, must be kept free from contact with caustic soda, water, nitric acid or lacquer. To accomplish this is very simple. We merely maintain the correct temperatures in the various dipping tanks.

The back frames and seat frames are at room temperature (70° to 80° F.) when delivered to the cleaning and finishing room. As they are lowered into the caustic soda tank wherein the solution is maintained at 145° F., the aluminum tube is heated immediately to that temperature, thereby causing air inside the tube to expand and escape around the wooden stopper which is inserted between the open ends of the frame. The heated air escaping around the stopper prevents any soda solution or rinse water from getting inside the tubular frame

Then, when the frames enter the acid bath, which you will remember is maintained at room temperature, the sudden cooling

Fig. 2—This view shows dipping tanks in cleaning and finishing room. Racks of parts are lowered and lifted from tanks by traveling electric crane.

THE CHARM OF A *Beautiful Finish*

GRANODIZED . . .

Spray Granodizing metal surfaces assures a durable, lustrous paint finish. The smooth, tight, hard, phosphate coating anchors paint to the metal for permanent protection; preventing the spread of rust from accidental injury to the paint finish.

The appealing beauty of the paint finish when applied to a Granodized surface will endure, whether it be the finish of automobile, refrigerator, washing-machine, kitchen cabinet or other products constructed of sheet metal.

MANUFACTURERS OF INHIBITORS AND METAL WORKING CHEMICALS

AMERICAN CHEMICAL PAINT CO.
AMBLER ACP PENNA.

causes quick contraction to take place. The free ends of the tube close so tightly around the wooden stopper that after finishing, compressed air is necessary to remove the stoppers from the frames.

Through strict adherence to temperatures we can successfully clean and finish these tubular frames without turning and juggling the frame around to drain solutions from the interior of tubes prior to assembly.

Bake Finish Used On Flue Liners

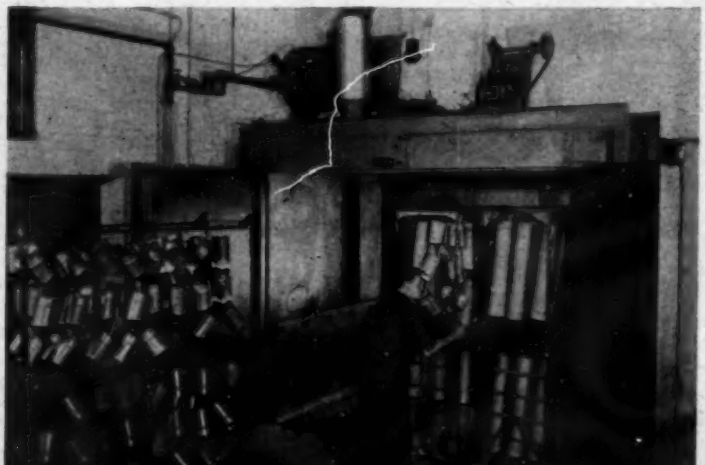
BY J. M. FALK
Despatch Oven Co.

USE OF HIGH-VOLUME forced convection heat to bake corrosion-resistant plastic coatings on aluminum chimney liners is the interesting function of a recently installed batch-type finish baking oven at the Heremetal Co. plant in Minneapolis, Minn.

To solve such corrosion problems a specialized plastic (Heresite) has been found very effective for coating the flue liners because, when properly applied and baked, it is smooth and highly resistant to chemicals, moisture, heat, acids, salts and solvents. Hard, tough and resilient, it has high resistance to chipping or cracking, a feature especially desirable for conversion jobs where new liners must be forced into old chimneys.

Processing requirements of this installation were unusual because of the size and shape of the flue liners and the acute sensitivity of the plastic material to time or temperature variations. Tests showed that a forced convection

Photo, courtesy of Despatch Oven Co.



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Alumiprep

Spot Weld and Paint Preparer

FOR PREPARING

ALUMINUM

before Painting and Spot Welding

MANY manufacturers are using aluminum alloys today in place of steel and other metals and are confronted with the problem of preparing these aluminum alloys before painting. ALUMIPREP is especially made to meet this requirement, and it also serves effectively in preparing aluminum for welding. Industries such as casket makers, commercial trailer manufacturers, garage door manufacturers and many others will be interested in using this superior product. ALUMIPREP has been tested and approved by leading aluminum alloy manufacturers.

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oven was essential—one capable of providing uniform, high volume heat flow throughout the chamber and with quick response automatic temperature control.

These heat and control characteristics were needed to assure complete polymerization of four successive coats of plastic into a hard, smooth, enamel-like finish that would adhere tenaciously to metal. High volume heat flow was also necessary to achieve rapid, uniform baking, inside and out, of 450 liners per load when placed on racks in the oven. To meet these specialized processing requirements, a gas-fired rack-loaded finish baking oven was installed. Complete with recording heat control instruments, a large capacity chamber containing adjustable ports for close regulation of heat flow and with other features for convenient operation, this unit has proven very successful.

Heremetal uses aluminum liners instead of steel because aluminum is only 1/8 as heavy, and the plastic coating will not chip from it. Liners are fabricated from flat aluminum stock and processed.

Pickling is the first step in protecting the metal liners from corrosion. They are cleaned in a hot caustic bath and etched with a hot muriatic and hot nitric acid bath. After each bath the liners are rinsed with water. Etching the aluminum makes the plastic coating stick.

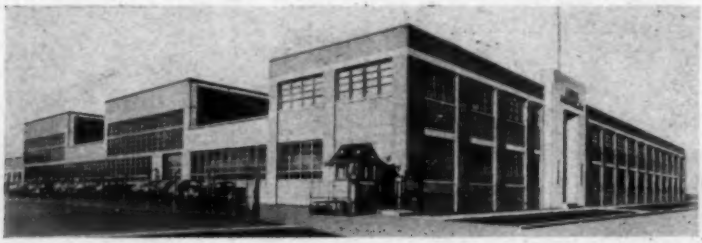
After the final rinse the liners are given two primer coats and two finish coats of plastic. The first three coats are baked for 20 minutes each at 300° F.; the last coat for 1½ hours at 400° F. Baking of the last finish coat polymerizes all four coats into one and changes the color from yellow to a deep brownish purple with a high gloss finish. This plastic coating may also be applied to numerous other parts which must be resistant to corrosion and heat.

Dave Wickes Returns to Easy Sanders

Announcement is made by Frank D. Nunemaker, president of Detroit Surfacing Machine Co. (manufacturer of portable Easy Sanders) of the return of Dave R. Wickes, General Sales Manager. Mr. Wickes has been on leave while serving with the Army in the Pacific.

Schwenke, Now the Service Manager for Ditzler Color

Appointment of V. G. Schwenke as Service Manager for the Ditzler Color Division of the Pittsburgh Plate Glass Co. was announced recently. For the past ten years, he has been associated with the Ditzler Color Division as a service engineer.



Detrex Corporation's new main plant and offices, 14331 Woodrow Wilson, Detroit.

- TWO-COAT RESULTS WITH ONE
- VARNISH-LIKE DEPTH AND FULLNESS
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COATING,

Above: Parts move slowly downward for first spray coating on one side, in water wash spray booth. In the pit below there are dipping tanks for optional use. Below the floor line this crossbar conveyor makes a turn upward to pass through another water wash booth.

Second water wash spray booth for spraying paint on other side of parts; also the section used for draining dip-coated units. Notice sprockets at right of operator. These produce a "chain lag" which causes the conveyor bars to tilt.

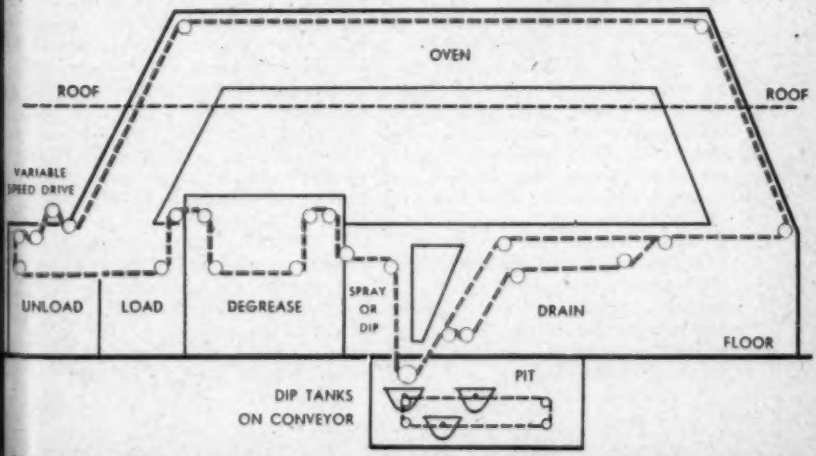
BY FRED M. BURT

Conveyorized CLEANING, DRYING SETUP . . .

IN THE MANUFACTURE of electrical switchgear, switchboards, and panelboards, Zinsco Electrical Products Corp. of Los Angeles, Calif., fabricates and finishes a great variety of metal enclosures. These metal units range from small, externally-operated switches to big intricate switchboards as long as 40-ft.

Some of the apparatus must be finished to withstand being anchored to the freshly poured concrete

In this mechanized setup, products can be either sprayed or dip coated and then baked in the oven.



walls of a commercial building; other units are placed on the walls of fine offices and in homes. Appearance and endurance are major factors in these products. Those designed for installation in walls are dip-coated. Typical coatings used include switchbox enamel and ready-mixed aluminum baking enamel. In finishing these items the major considerations are coverage and durability.

Other units are sprayed with lacquer and rubbed to a fine finish. A marine gray and a special Zinsmeyer gray lacquer are hand rubbed. Among the other sprayed coatings are a black switchboard lacquer and an attractive Hammertone finish.

A Compact Conveyorized Unit for Spraying or Dip-Coating

A practical and efficient finishing system is required for the proper application, drying and baking of the different finishes on such a great variety of sizes and shapes of metal parts, some of which are made in small quantities while others are run in large quantities. The system must be flexible in operation.

The entire finishing system is combined in one compact continuous unit. It occupies a space 65-ft. long, 9-ft. wide and 30-ft. high above floor level. A dipping pit is 7-ft. 9-in. below floor level. This setup will finish products having maximum dimensions of 6-ft. in length, 4-ft. wide and 1-ft. in depth. The oven is placed overhead to take advantage of the low end-heat-loss which is possible with the "A" type construction; also, to conserve floor space and to have the loading and unloading stations conveniently close together. Travel time from oven to unloading station is sufficiently long to allow all finished parts to cool off before they are taken off the conveyor.

The twin conveyor chain is 200-ft. long and is driven through a variable speed transmission which allows products to move through the 43-ft. oven in from eight minutes minimum to 40-minutes maximum, travel time. Long tubular crossbars, spaced 5-ft. apart, span the conveyor chains. Each crossbar has disc dividers spaced 3-in. apart. Oven heat can be controlled from the main switchboard. It can be set for temperatures as high as 450° F.

Once the parts are hung to the conveyor crossbars, the conveyor moves them up and then down into the solvent degreasing tank; up again, over a short distance, and then down past the first spray station which is a water wash spray booth. Here the parts are all sprayed on one side.

Three Portable Dipping Tanks Located Below Floor Level

If the units hanging from the conveyor are to be dip-coated they are passed through a shallow dip tank located in a pit below floor level. Three dip tanks are so arranged that any one of them can be quickly spotted in position for any conveyorized dip-coating on the production line. This arrangement allows a quick change from one color to another when ever the occasion demands it. While one tank is in service, one or both of the others can be cleaned or filled in preparation for service, or simply left idle—or all three can be moved clear of the production conveyor, as is the case when only spray painting is under way. *(Cont. on page 66)*

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STRAIGHT-LINE RECIPROCATION

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EASY TO HANDLE

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DEMONSTRATIONS ON YOUR WORK — FREE!

In your own plant and on your own jobs see for yourself Sundstrand's pneumatic sanders in operation . . . we will arrange for a free "on-the-job" demonstration. Convince yourself. See the power and speed of Sundstrand sanders . . . the handling ease in producing fine finish on wood, metal, plastic or composition. Write today for a Sundstrand representative to come to your plant.

OVER 30 YEARS EXPERIENCE MANUFACTURING PNEUMATIC SANDERS

SUNDSTRAND MACHINE TOOL CO.
PNEUMATIC MACHINE DIVISION
2562-H ELEVENTH STREET ROCKFORD, ILLINOIS, U. S. A.

Sprayed parts move up out of the pit on a 45° angle and pass through another water wash booth where they are sprayed on the reverse side.

Telescoping Tubular Crossbars Tilt Automatically

A novel tilting feature, as applied to the conveyor crossbars, provides for the draining of dipped units. At a certain point each crossbar is tilted. This tilting is accomplished by the use of an extra sprocket which causes a chain lag on one side. At a point further along, the tilted bars are again restored to a level position. The added length of each crossbar, as a result of tilting the bar, is provided for by having one of its wheels mounted on a steel rod which telescopes into and out of the tubular crossbar. The alternative method of placing units to be dipped, on the bar in a tilted position would require greater overall dimensions in the oven to handle the larger parts.

Following the coating operation the conveyor carries the work in process upward into the oven for the return line of travel. The oven is heated by two direct-fired, surface-combustion gas burners, each rated to produce 500,000-B. t. u. per hour. One unit heats the first 17-ft. of the oven and the other unit heats the last 25-ft.

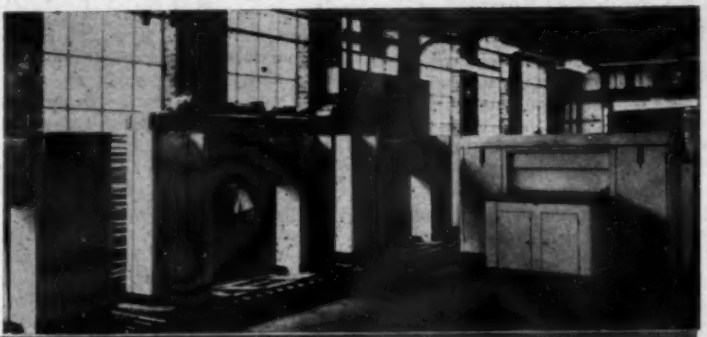
Complete Control at One Master Switchboard

The conveyor setup is completely controlled from one master switchboard. In fact the whole system is so fully mechanized and automatic that when the line is in operation on dipped parts (no spraying) in such a volume that one man can handle the loading and unloading, this one operator can handle the whole job. The maximum number of workers ever required is four—one for loading, one for unloading, and two for spraying.

Maximum capacity of the system depends on the sizes and shapes of items in a production run. To date, production amounting to 4320-sq.ft. of surface per hour, has been processed at a fraction of the unit cost involved in former methods of finishing, and the quality of the work compares favorably with any coating jobs performed by other methods which are rated as highly efficient.

(Continued on page 68)

Preston D. Rowan, Chief Mechanical Engineer who designed the complete unit and supervised its construction, stands at right of main control board. At left, a Brown indicating air-operated control thermometer controls the first 17-ft. section of the oven. A similar instrument at the right, but with recording dial, regulates the other 25-ft. of oven. Beneath these thermometers are the various control switches and warning light bulbs. The whole switchboard is a typical Zinsmeyer unit.



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INFRABAKE WHITE Nº 107

"Smart looking cabinets . . . those Lincoln Service Merchandisers for garages and service stations!"

And Berry Brothers' Infrabake White No. 107 keeps them rolling off those fast-moving Lincoln production lines, faster and faster, to meet the rapidly growing demand!

Infrabake White No. 107 is a real, time-saving, production-pushing finish.

Here's the Lincoln system—

1. **Cleaned metal parts are hung on conveyor chain;**
2. **Enter spray booth where one painter sprays prime coat and another (2½ min. later) sprays finish coat of Infrabake White No. 107;**
3. **Parts then pass into heat room (74° for 2 min.) and through infrared tunnel (328° for 5 min.);**
4. **Cool, inspect and assemble.**

Berry Brothers' Infrabake White No. 107 is one of the most popular postwar white enamels. It applies easily, hides well and is very high in color-retention after baking.

Let us tell you more about it and supply you with a sample. A letter will bring you further facts quickly.

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SEE OUR INSERT IN SWEET'S NEW PRODUCT DESIGN FILE

Gas Heaters Controlled to Maintain Desired Heat

The gas heaters are controlled automatically, but separately, to hold a predetermined temperature setting for each section of the oven. The first instrument is set to control the rate of heating for products entering the oven. The second instrument is of the recording type and it is set to hold any predetermined setting and to record oven performance.

Inasmuch as the baking is done without the use of heat exchangers, but by the introduction of hot combustion gases directly into the oven, to obtain the maximum heating value from the fuel consumed, the best safety devices are required. The master safety control is a combustible gas alarm which must be put into service and must be functioning normally within less than 25% of the lower explosive limit of the gases in the oven before the gas burners can be lit. This instrument also cuts off the ignition system, pilots and burners, and sounds an alarm at any time that the concentration of combustible gases in the oven exceeds a safe predetermined setting. The oven is designed well within the Underwriters' requirements of 9000-cu.ft. of air circulated for each gallon of thinner evaporated. At peak capacity the oven has not exceeded an 8% concentration of the lower explosive limit of combustible gases.

Automatic Safeguards Protect Everything

Each oven section has a heater equipped with two burners mounted at right angles, with a pilot light between them. They are equipped with a safeguard unit that cuts off the gas in case of flame failure. This is the Brown Flame Electrode Protectoglo System which operates on the principle of flame conductivity. All flames are the result of a chemical reaction. In a gas flame the oxygen of the air combines with the carbon and hydrogen of the gas to form carbon dioxide and water vapor. The flame is always accompanied by ionized particles which are the result of the reaction. These irons are capable of conducting a current between the burner and an electrode inserted in the flame. This slight current is amplified by a vacuum tube to operate the protectoglo relay which responds only to flame and is not affected by hot gases.

How Air Switches Function

Air switches are installed in the two hot air-circulating ducts which introduce hot gases into the oven through ports on each side close to the bottom, and in the exhaust duct which draws hot air out at the top for re-circulation (with the proper addition of fresh air). These switches will cut off the burners in the event of failure of a motor, fan or belt. In addition to these safety devices, the time delay instrument prevents the burners or ignition systems from operating until the blowers have run a sufficient length of time to purge the heaters, duct systems and oven sections of all combustible gases or vapors.

Pilot Lights Indicate Conditions Within Oven

The master control board is equipped with pilot lights to indicate the condition of the burners, ignition system, time delay, blowers, conveyor and concentration of

finishing field

Weatherproof—waterproof! Will not flake, peel or discolor! Can be heat-embossed to create simulated alligator or other textured leather effects at low cost. Read about this exciting new development:

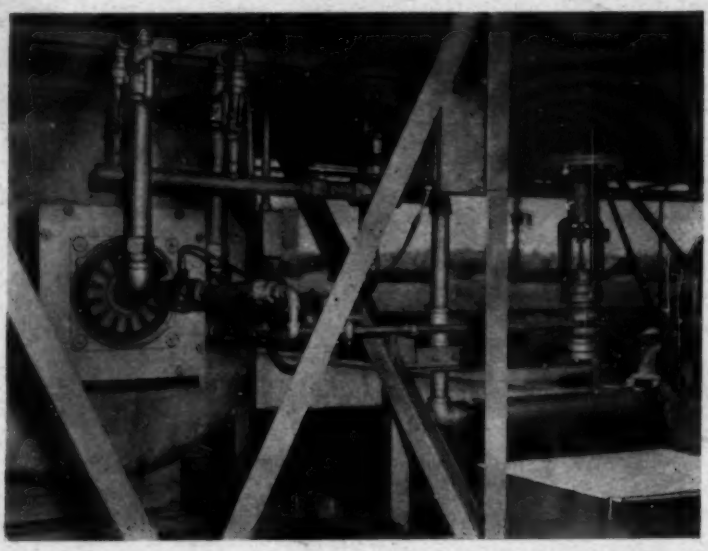
This versatile finish from the laboratories of H. V. Walker will open wide new vistas in the use of low grade leathers—and save real money for all finishers and producers of leather goods.

Leatherflex will not rot, dry out or split at seams or folds. So it's ideal for hard-used items like wallets and billfolds, leather office furniture, sweatbands for men's hats. And because it's available in a wide range of bright, clear colors and can be heat-embossed for smart new textures and effects, Leatherflex is money in the bank when it comes to smart-style items like women's pumps, luggage, handbags, etc.

This new finish can help YOU! So get all the details on fast-drying, money-saving Leatherflex. Write today for technical application data and complete facts.

ELIZABETH 4, NEW JERSEY

"A SYMBOL OF QUALITY IN THE FINISHING FIELD"



This picture shows heating equipment for the first 17-ft. section of oven, with two surface combustion, natural gas burners firing at right angles into the combustion chamber, and with pilot light between them, using electric spark ignition. The wire running from the top of the pilot is part of the Protectoglo system; it leads to the vacuum tube amplifier and relay. If the flame should go out, this protective device operates a General Controls valve which cuts off the fuel supply from the burners and pilot.

vapors in the oven. Fire protection consists of an automatic water fog spray system and a portable CO_2 machine.

Fuel economy, obtained by using the direct-firing of products of combustion into the oven, is illustrated by the fact that under full production a working temperature of 300° F. can be maintained in the oven at a cost of only 15 cents an hour; an oven heat of 450° F. costs about 30 cents an hour. The 1100-B. t. u. natural gas, in the relatively small quantities used in this plant, costs about 30 cents per 1000-cu.ft.

Some of the calculations involved in determining proper heat balance in the oven are as follows: The oven was designed to bake enamel at 450° F. in 40 minutes. The maximum size box to finish was set at 6-ft. long, 3-ft. wide, and 1-ft. deep, with one 3x6-ft. side open, with a metal area of 36-sq.ft., and with 12 gauge steel weighing 4.46-lbs. per sq.ft., each large box weighs about 161-lbs.

The conveyor runs at about one foot per minute for a 40 minute bake. Loading bars are spaced 5-ft. apart on centers because the load, plus the length taken up by the hook, must pass between bars when the conveyor reverses its direction of travel. Twelve bars

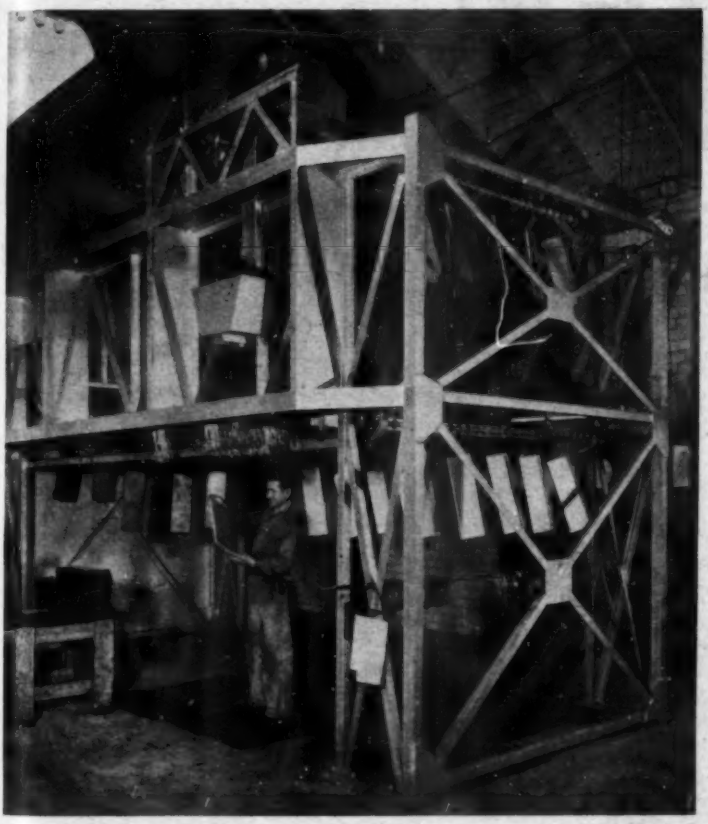
(Continued on page 77)

per hour enter the oven, making a total of 1932-lbs. for boxes. The conveyor weighs 5-lbs. per foot including the conveyor bars. This figures 300-lbs. of conveyor (5x-12x5) entering the oven each hour—a total of 2232-lbs. (1932 plus 300) for load plus conveyor.

The number of B. t. u.'s required for heating metal from a room temperature of say 70° F. to 450° F. (380° F. net) would be figured this way:

2232 x 380 x .117 equals 99,000-B. t. u.

The oven is insulated with 3-in. of rigid Fiberglass insulation (be-



In right foreground you see the unloading station. At left, farther along the line of crossbar conveyor travel and where foreman is examining a finished panel, is the loading station. Above is variable-speed transmission through which the conveyor is driven.

X-RED FUSION TYPE FINISHES

A group of related finishing materials that permit wood to be stained, filled and finished faster, easier, better and more economically than ever before.

The long-sought answer to the "bottle-neck" of staining and filling operations. Recoat immediately or at any subsequent time. Each application from stain to final coat harmonizes with preceding or succeeding application. Resultant finish is in effect one "fused" coat — with better color clarity and uniformity; more fullness and body; less shrinkage and swelling; greater toughness and durability.

Only a fraction of the normal finishing time required; floor space saved; equipment, heating and labor costs reduced.

Rely on Reliance

RELIANCE VARNISH CO

These Red-X materials will speed-up your finish and save you money!

WIPING STAIN — FILLER STAIN — TONER STAIN
PASTE FILLER — WASH COAT — GLAZING STAIN
SANDING SEALER — SHADING STAIN

Look at these advantages!

- No special thinners required. Wiping stain, filler stain and paste filler reduce with petroleum naphtha of proper evaporation range. Other materials ready to use.
- Apply in customary manner. Wiping materials clean up easily and quickly. No gummy or sticky residue.
- Seal immediately or at any subsequent time. Sand sealer in customary time.
- No blushing or bubbling. No swelling, shrinkage or turning grey in the pores. Succeeding coats have better body and fullness.
- Better clarity and uniformity of color. No bleeding or fading of color. End grain and soft spots are not turned black.
- Toughness, adhesion and durability are promoted because all coats fuse together instead of laying on top of each other.
- Costly conveyors and ovens not required; floor space saved; possible to go *from raw wood to finish coat in about an hour without the application of heat.*

SEND FOR THIS BOOKLET
Get the full story of "fusion finishing". Write Reliance, 915 E. Kentucky St., Louisville 4, Ky

COMPANY - Louisville, Ky., Chicago, Ill.

cause of its light weight and high insulating characteristics). With a hot surface temperature of 450° F. and a cold surface temperature of 106° F., the heat loss is 38-B. t. u.'s per square foot per hour. The area of the oven and duct system is approximately 1300-sq. ft., therefore the heat loss from the surfaces is 1300 x 38 or 49,400-B. t. u.'s per hour.

Twelve bars enter the oven each hour, carrying a load of 72-sq.ft. of coated surface on each—a total of 864-sq.ft. Assuming a coverage of 300-sq.ft. per gallon of coating material, the paint required would be 2.88 gallons per hour. Also, assuming 50% of the paint to be thinner, there would be 1.44 gallons of thinner to be evaporated every hour. Anticipating five times this rate of production for faster drying synthetic enamels, the system was designed to evaporate up to seven gallons of thinner per hour.

With the Underwriters' requirements calling for 9000-cu.ft. of air circulated for each gallon of thinner evaporated, this would add up to 63,000-cu.ft. of air per hour. Adding also, 11,000-cu.ft. of air for combustion gasses (1000-cu.ft. of gas plus 10,000 cu.ft. of air) the total is 74,000-cu.ft. of air. There are 13.34-cu.ft. of air per pound. Specific heat equals .238. The b. t. u. loss equals 74,000 divided by 13.34; this multiplied by .238 times 380° F. (450° — 70° F.) equals 502,000-B. t. u.'s.

The total calculated heat loss in B. t. u.'s is:

Material and conveyor	99,000
Surface loss	49,000
Air for ventilation	502,000
Total	650,000

Subtract this total from 1,000,-000-B. t. u.'s and we have 350,-000-B. t. u.'s for minor loses, such as evaporation of thinner, end losses in the oven, and to lower the heating time required for the oven.

The mounting of the oven and its accessory equipment on the factory roof is an excellent method of saving space without detracting from performance. In fact, in some ways it improves operating conditions. To facilitate oven construction, the sub-assemblies were fabricated on the ground, principally from structural steel, by arc welding. The 43-ft. oven section was the largest sub-assembly. It weighed 15,000-lbs. complete with the heaters, duct system, blowers, insulation, sheet metal covering and control valves. Special lugs were attached to the frame for handling and the oven was hoisted into place on the roof with two cranes.

The efficient and growing firm, for whom this system is operating, is under the management of its owners, Martin Zinsmeyer, Wilford Zinsmeyer and J. C. Richards. The finishing system was designed in detail and constructed under the supervision of Preston D. Rowan, Chief Mechanical Engineer.

National Association of Foremen

Calling attention to the urgent demand for management men who are well informed and uptodate on present day problems, the National Association of Foremen (NAF) has patterned its 23rd annual convention at Forest Park Hotel in St. Louis, Mo., on September 12, 13 and 14, along this line.

The NAF's annual convention is fashioned around the timely theme: "Supervision United for a Better American." More than 15 sectional conferences, all dealing with virtually every phase of present-day problems experienced in industry, are particularly designed for self-improvement of the attending representatives.

NON-HAZY SURFACES

just one of 7* SANTOCEL superiorities

Because the refractive index of Santocel, Monsanto's unique silica aerogel flatting agent, is so nearly that of most film formers, *far less haze results* than with other flatting agents.

In addition, this exceptional clarity is lasting, because Santocel is unaffected by temperature or humidity.

This important feature, added to six others listed here, makes it obvious why many, manufacturing finer finishes, are incorporating Santocel in varnishes, lacquers and synthetics. If you would like full details, samples, or the advice of Monsanto finishing specialists, write: MONSANTO CHEMICAL COMPANY, Merrimac Division, Boston 49, Massachusetts.

Santocel Reg. U. S. Pat. Off.

*SIX OTHER SUPERIORITIES

1. Improved Surface Hardness
2. Improved Mar Resistance
3. Better Heat Resistance
4. Fine Delustered Appearance
5. Flexibility
6. Better Adherence

MONSANTO CHEMICALS

SERVING INDUSTRY...WHICH SERVES MANKIND

Abrasion Testing Proves Quality Control Aid

BY A. P. SCHULZE

WHY IS IT that more and more manufacturers of paints, lacquers and enamels are now testing their products for abrasion resistance? For one reason, it's because they have been quick to discover the increasingly important contributions that properly performed abrasion-resistance tests make to the maintenance of quality control standards.

Far-sighted manufacturers are finding, too, that a finish *wear-tested in advance* forms a mighty strong selling point. At the same time, it gives purchasers of their goods concrete assurance at the very outset that the product-coating materials selected in turn for their own particular products will "stand the gaff" subsequently imposed by rigorous service conditions.

For example, one leading maker of a plastic-base production finish subjects his product to a number of exacting tests, including abrasion resistance, to insure product quality. Wearability of finish is measured with scientific accuracy on a precision-engineered instrument designed expressly for wear-testing that effectively accelerates normal abrasion many thousands of times.

Panels coated with finishing materials to be tested are mounted on a turntable which revolves at constant speed under two calibrase wheels. The number of revolutions necessary to wear through a given thickness affords a calibrated precise measure of the resistance provided by any given finishing material against mechanical abrasion.

An Eastern manufacturer of a bowling alley finish uses a similar easy, quick, convenient routine for accurately determining product durability. "No guesswork here," he says, adding that such a serviceability test is but one of the many laboratory research techniques regularly utilized by his company to maintain quality control.

Or take the experience of a prominent supplier of business machines. In this company's modern research laboratory, wearing qualities of all finishes used on business machines are continually checked, double-checked, and then re-checked, with an instrument which measures with analytical balance accuracy the wear rate of surface finishes subjected to rubbing abrasion. *A lifetime of wear is determined in a matter of minutes!*

To the enterprising coating materials producer, developing a finish of increasingly superior quality is a never-ending effort. Through continuous research and testing, with the development of finishes of better performance at lower cost serving as a prime incentive, he strives to make products of which he can be increasingly proud. It is this pioneer's spirit and craftsman's touch that spurs finishing progress.

Clearly show buyers quality in advance, and you have at your instant command a mighty potent sales weapon! And one sound, safe, successful way to obtain such a weapon easily and economically, according to steadily mounting evidence of plant experience, is through abrasion-resistance testing.

Why? Because it brings buyers a decidedly practical method—right on the spot—for determining

another

New Wrinkle

with COLOR and TEXTURE

Texture and color are only a part of the Wrinkle story. Economy, durability, production time-saving are other parts of the story of the most versatile of all industrial coatings.

If you are not already using Wrinkle, it will pay you to investigate. And if you are among the thousands of users, you'll be interested in new developments in Wrinkle . . . for instance, in the synthetic rubber-base, and resin emulsion-base flexible, Wrinkle coatings.

There are literally hundreds of controlled Wrinkle textures, and an unlimited variety of color combinations for every conceivable application to either flexible or non-flexible surfaces. No other industrial finishing material offers so much in distinctive decoration and protection.

Eye-appeal . . buy-appeal . . long-lasting protection . . and unequalled production economy are the unmatched characteristics of versatile Wrinkle.

Write for "New Wrinkles in Finishing," . . . bi-monthly report on Wrinkle developments and applications. It lists approximately 200 manufacturers of Wrinkle finishes and coatings. One or more are near you.

Wrinkle

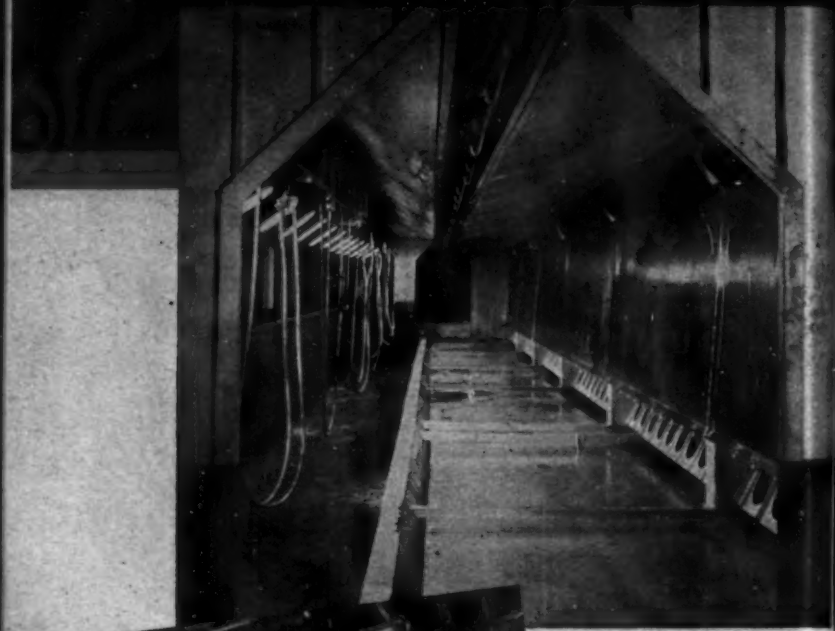
New Wrinkle, Inc., *Offices and Research Laboratories* **1765 Springfield St., Dayton 3, Ohio**

Flexible Wrinkle for coating paper, fabrics, rubber, plastics and artificial leather.

Any Industrial Finish manufacturer who maintains our standards is eligible for a Wrinkle License.

√ Office equipment, typewriters, adding machines, etc. √ Electric motors and tools. √ Tool chests and cabinets. √ Scientific and precision instruments. √ Photographic equipment. √ Coatings and fabricated metal parts. √ Cabinets.

COMPLETE



Above: Mahon Hydro-Filter Spray Booths—Part of the Acme Installation. At right: Enclosed Spray Room which houses all painting operations in the same installation. Note Plate Glass Windows. At Left: Metal Cleaning and Rust-Proofing Equipment—Part of the Acme Installation. Note the Enclosed Spray Room at the left and the Up-Tunnel to the Baking Oven overhead. Compactness in design and arrangement of major units saves much valuable Manufacturing Floor Space.

M

Finishing SYSTEMS

for ENAMEL • LACQUER • PAINT • VARNISH

. . . Planned, Built and Installed to Meet YOUR Specific Requirements

Illustrated on these pages is another complete Finishing System — a typical, modern, industrial Finishing System. It is the third Complete Finishing System furnished by Mahon for three different plants of the Acme Metal Products Corporation . . . further evidence of the complete confidence with which manufacturers turn their entire finishing problem over to Mahon. You, too, may avail yourself of the vast experience of the Mahon organization in this highly specialized field—experience covering hundreds of installations in many diversified industries all over the world. If you have a finishing problem in your plant today, or if plans for the future include new finishing equipment, call in Mahon engineers—they bring to you a wealth of technical knowledge and practical know-how not available to you elsewhere.

Address Correspondence to INDUSTRIAL EQUIPMENT DIVISION

THE R. C. MAHON COMPANY

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Engineers and Manufacturers of Complete Finishing Systems including: Metal Cleaning Machines, Rust-Proofing Machines, Dry-off Ovens, Hydro-Filter Spray Booths, Filtered Air Supply Units, and Drying and Baking Ovens. Also Paint Sludge Reclaiming Units, patented Hydro-Foam Dust Collecting Systems, and many other Units of Special Production Equipment.

MAHON

precisely the maximum wear-resistance *before* the order is placed. With an abrasion-measuring instrument on the job, the manufacturer knows that he can rely on any finish he puts on the market to provide the dependable performance and long-lasting protection expected of it.

Solvent Sickness Treatment

PREVENTION of exposure to organic solvents or their vapors is the objective of every solvent safety program. Yet accidents can and do occur. However, prompt first aid followed by proper medical treatment will generally avoid injury.

Following are first aid measures for exposure to organic solvents:

If an individual is affected by the inhalation of solvent vapors, so that he develops dizziness, nausea, headache, irritation of the eyes or respiratory tract, or other signs of illness, he should be immediately removed to a solvent-free atmosphere. If unconscious, he should be placed on his back and covered to prevent chill. If breathing has stopped, prone pressure artificial respiration should be given.

Under no circumstances should alcoholic stimulants be given to individuals exposed to solvents. Serious injury may result.

If solvent enters the eyes, they dividual should be made to vomit immediately.

If solvent enters the eyes, they should be washed promptly with large amounts of water for at least 15 minutes. For this purpose it is advisable to use a low-pressure supply of water at room temperature to avoid shock.

If a large quantity of solvent spills on the skin, it should be washed off and an emollient cream applied.

If solvent spills on clothing (except where safety, or solvent-resistant, clothing is worn) wet clothes should be removed, the body washed, and an emollient cream applied where the solvent has penetrated. Clothing should be dried outdoors or where evaporating vapors will not be inhaled, and should not be worn again until free of solvent odor.

Following first aid, prompt medical attention should be obtained. This is of special urgency where solvents have been taken internally or where an individual feels acutely ill from the inhalation of vapors. Serious injury may result where such cases are neglected, whereas prompt medical treatment usually brings complete recovery. —*Safety Research Institute.*

Process Printing, Decals and Finishing Service

The O. Austin Co., 42 Greene St. (near Grand Street), New York 13, N. Y., announces larger facilities for process printing and decorating of glass, metal, wood, plastics and paper products. The company also supplies decals.

Schumann of Hilo Completes 50th Year of Service

A. G. Schumann, Vice President of the Hilo Varnish Corp., Brooklyn, N. Y., was honored at a luncheon tendered him on July 18 by members of the Board of Directors and the Hilo Executive Committee in recognition of his 50th year of service with the company.

Shumann joined Hilo—then known as Moller & Schumann Co.—in 1896, as an office boy. Two years later, his father, co-founder of the 53-year old company, gave him a price list and told him to visit all the paint stores along Broadway and Fulton Street in Brooklyn. That was the start of Schumann's selling career.

Manufacturers' records prove that the relatively small amount of money spent on a quality finish like M & W WRINKLE pays enormous dividends because the added "eye appeal" is such a strong stimulant to sales. M & W synthetic Wrinkle enamels bake with a characteristic wrinkle formation which is highly attractive and very practical on such products as business machines because of its low light reflectance. It's a tough, durable finish that covers effectively scratched, imperfect or rough surfaces. Available in black and many other colors in four textures or wrinkle patterns. Adaptable to varied production schedules for convection and infra-red baking.

PIONEERS M&WCo 1876 IN PROTECTION

MAAS & WALDSTEIN COMPANY NEWARK 4, NEW JERSEY

1658 Carroll Ave., Chicago 12 · 6 Jersey St., Boston 15 · 1228 W. Pico Blvd., Los Angeles 15

PRODUCERS OF LACQUERS, ENAMELS, SYNTHETICS AND SPECIALIZED PRODUCTION FINISHES

Letters from Readers

To Measure Viscosity

Following is a quotation from a letter received from one of our good customers:

"Several years ago, the finishing magazines carried items about an instrument for measuring paint viscosity by inserting a rotating motor-driven paddle into the paint pail, the viscosity being indicated on a dial.

"Have you any information on who the manufacturers of such a device is? We require a continuous reading viscosimeter in connection with a plating process and thought this might work out."

We shall appreciate it very much if you can furnish us with some information concerning this viscosity apparatus.—Finish Mfr.

We do not know of a viscosity measuring device of the type described. Can some reader supply information on this?

You probably know that the usual equipment for checking the viscosity of finishing materials in finishing rooms and paint shops where materials are used, is the viscosity cup—along with a stop-watch. This affords a quick, easy, inexpensive and reasonably accurate way of checking viscosity of all kinds of finishing materials. Details of how it is used are included in an article elsewhere in this issue.—ED.

Solvent Vapors Harmful

In your February issue of INDUSTRIAL FINISHING (pages 137 to 139) there was an article called "Safety With Solvents." Whoever wrote that article must have had first hand knowledge of the bad effects of solvent vapors because he describes them so accurately—the dizziness, weakness, lethargy, defects in vision, and loss of time due to sickness.

I am foreman in a staining room in which all of those things are continually taking place with some of the men, myself included. Illness is most frequent during the winter and spring months, and is confined almost entirely among the men with several years of service.

This last winter and spring all the older men were sick. Two of us were out for over ten weeks, and two others for over a month of total lost time. Absenteeism was so great that my company recently called in a physician to examine all of us.

The physician made physical tests at the shop, including blood tests and reported no abnormality common to all the men; in fact, nothing much wrong at all. His report in final was, "No evidence of any harmful effect due to working in the staining department."

No tests were made of the materials we use or of solvent vapors in the air. Still three men who got through, due to feeling so miserable, recovered and felt much better after being out of the staining room a few months. Two of the older men (older in years of staining) went home recently very sick. We do our staining over a lacquer toner in a well lighted room with a high ceiling.

The lacquer toner dries in the room in which we stain and there is no forced ventilation; only windows that can be opened in summer, but very little in winter and early spring.

Can solvent poisoning be detected by physical tests and is the blood attacked by these vapors? Any information that you can give me would be greatly appreciated.

I wish that you would send this letter to the person who wrote the February article. He wrote with such real knowledge of the subject that perhaps he would be kind enough to write to me and try to help us here.—Finisher.

The article in question was supplied by Safety Research Institute, 420 Lexington Ave., New York 17, N. Y.—ED.

Agree With Editorial

In our careful perusal of the July issue of Industrial Finishing, we came across and noted with more than casual interest the editorial on "Changes Make Errors of Previous Facts," page 138.

It made us sit up and take notice. We read it over thoroughly several times to make sure that the lesson it contains on "practical publicity" would be thoroughly digested.

You will be interested to know, first of all, that we here at Taber Instrument Corp. are virtually following "to the letter" your sound suggestions on eliminating the need for "negative procedure" in sending out publicity that you speak of.

Every news item released is triple-checked—first, at its original source, the Public Relations Department; second, for technical accuracy, by the Engineer-

FULLER *Industrial* FINISHES

"We never have to fight the application of a Fuller Finish! That helps keep production costs in line. And, there's no lag—the stuff moves along—doesn't tie up the shop. Say, when the front office checks us at night, they go back happy. This finish always looks the way the sales department wants it."

Fuller rests its case on this Foreman's testimony.

W. P. FULLER & CO.
SAN FRANCISCO
LOS ANGELES
PORTLAND
Branches
throughout the West

ing Service Department; third, for its overall relation to company policies, by the management.

With such a routine, the chances for error, particularly in relation to certain elements and conditions that might affect the facts of a release, are drastically minimized. At the same time, publicity is prepared and checked with a thought to the future. This triple check thus serves a dual purpose: Guarantees correctness of the information and helps assure proper timing of the release.

Regarding details which may change overnight, we heartily concur with your belief that they may not be of fundamental importance to the reader in many instances. So it is a cardinal rule here to refrain from "climbing out on a limb" by mentioning such changeable things as equipment construction details unless they have become standard features following extensive research.

A company is in business for one purpose—to make money. But the concerns who do this with most consistent success are usually those who stress "service." Be as helpful to a customer as you can, and in 9 times out of 10 he will not forget you when it comes time for placing an order.

It seems to me that publicity, likewise, if it is to benefit a manufacturer to the maximum, must "accentuate the positive"—provide both timely news and practical information that will aid his customers in reaching the solution to their production or processing problems.

Perhaps publicity is not given the competent attention it merits in many companies because its overall functions and benefits are not always realized. Perhaps it is because other more seemingly important matters claim top management's primary attention.

Whatever the cause, there is no disputing the fact that the type of publicity sent out by a company invariably reflects the tempo of the organization, and any concern which does not take special pains to make certain that its publicity reflects creditably to the firm is merely defeating its own purpose through a loss of prestige and goodwill.—Arthur P. Schulze, Public Relations Director, Taber Instrument Corp.

Finishing With Lacquer

Referring to the Q. & A. entitled, "Finishing Woodwork With Lacquer," published in June 1946 issue, page 104, I am very much interested in this type of work and would like to contact E. Mfg. Co.

I have been finishing for the past 16 years and am well acquainted with this type of finishing. Before entering the finishing field I was a painter. Now I combine the two with excellent results.

For the past seven years I have been foreman for one of the largest custom refinishing shops in Kansas. Although the cost of finishing special-made and antique furniture is not taken into consideration, as each job must be as nearly perfect as possible, I have worked out a method which is as low in cost as possible, and still I have excellent results.

I use almost the same method in finishing interiors of homes. I am the only one in the city that uses lacquer in finishing woodwork in homes.

In finishing custom built interiors I use almost the same method Mr. Hogstrom recommends, except the first step, and it is a time saver. I use a colored filler manufactured in New York. This does away with the staining process and has just as deep and clear a color as oil stain. Then I seal the wood with two coats of sealer. Sand this coat and spray one coat of gloss lacquer. Let this dry and spray again with one coat of semi-flat lacquer. When this is dry and if it is to be an A-1 job, I compound it with a special compound manufactured by DuPont. This method will be a time saver and produce as good a finish as is necessary.—E. A. P.

To Fill Fine Checks

We are eager to find the solution of a problem that is causing us a lot of expense. Our product is juvenile furniture, manufactured from soft and hard maple and birch.

Throughout the final stages of machining operations, during assembly operations, and often after dipping in stain, slight checks are discovered in a top or seat, which culls the article. So far, we have not found a satisfactory method of patching these checks, having tried stick shellacs and other patching compounds offered on the market.

We would like to know if there is anything like a fluid filler or cement that can be applied with a brush, penetrate the depth of the check and harden in a short time. Since we use a penetrating stain, this cement must not penetrate the pores of the wood, as the stain would not take.

You may know how other manufacturers are solving this problem and may be able to advise us. So far, we have been unable to patch these checks satisfactorily.—C. L. Co.

Several companies that advertise in this magazine manufacture or can supply crack filler suitable for your requirements. Look up the nearest one to you and ask them to send a representative or service man. He will fix you up promptly.

Evidently the cause of the surface checks is improper drying of the lumber. We wonder whether this makeshift remedy of filling the surface checks will be satisfactory or if it may be only of temporary value. The checks may become still larger if the lumber continues to dry after having been made up

into furniture. You probably know that lumber, to be made into furniture, or any other product that is to be used inside, should be thoroughly seasoned or properly kiln dried before machining, assembling and finishing or painting operations begin.—ED.

Electrostatic Detearing

Will you please advise what is meant by Electrostatic Detearing?—A. P. Corp.

Read the illustrated article on this subject in June 1946 issue of this magazine, see pages 31 to 36.—ED.

Wants "Nu-Glo" Finish

Prior to the war, I purchased an excellent French polish (sheilac varnish) "Nu-Glo," from Star Chemical Co. During the years I have lost the firm's address. I would greatly appreciate your giving me their address.—T. E. R.

It's 4500 W. Cermak Road, Chicago, Ill.

Water Wash Spray Booths

We are in the process of erecting a new building which will be our new showroom and shop. We are interested in installing a waterwash spray booth. Could you please send us a list of names and addresses of firms who manufacture them?—I. F. D.

We are sending you a list. All of them advertise every month in this magazine.—ED.

Offer Terpenes for Paint

A recent article in your magazine by Lawrence H. Singer, refers to the use of terpenes in paint. We have a customer from whom we can obtain several tons of these terpenes, and we would appreciate it greatly if you could put us in touch with the manufacturer who is using terpenes for paint.—B. C. Skinner Machinery Co., Dunedin, Florida.

Whose Stains Were Used on That Mountain Maple?

We are particularly interested in Gordon Obrig's article, "Design and Decoration of Manufactured Products," beginning on page 40 of July issue, especially where he starts with "One of Our Assignments; a 30-in. Dresser," on page 42.

We, like other manufacturers, are having difficulty today in procuring suitable furniture lumber. In an effort to maintain production, we have been forced to use lumber which is badly discolored. We will be particularly interested in learning who manufactures the stains described in the finishing procedure of both the oak and maple 30-in. dresser in Mr. Obrig's article. If you can favor us with the name of the source of supply, it will be of great assistance to us.—I. Furn. Co. (Lowell, Mass.)

Mr. Obrig, author of the article, may have the information you request. We are writing him. However, several concerns who advertise in this magazine can supply suitable stains and other finishes for any woods you are using. In a letter we are submitting names and addresses of some of those near you.—ED.

Equipment Wanted

Can you give us the names and addresses of manufacturers of roller-coating machines, infra-red drying-baking equipment, and vacuum-pressure impregnation equipment? These are to be used in connection with plywood and Masonite full-sized boards.—Novo Products Co.

Some of this is advertised in "Industrial Finishing." More complete information is given in a letter to you.—ED.

Agree With "Foreman Finisher"

I was interested in the article by Foreman Finisher on page 70 of July issue—the one entitled "How Foremen Solve Their Problems." I agree 100% with what he says.—Floyd H. Cohagan.

Decorative Coatings for Glass Surfaces

Would you endeavor to locate sources of supply from whom we may procure finishing materials (paint, lacquer, acid coloring) for application on glass—primarily glass tumblers and pitchers? This material is to be applied in some cases by brush for hand decorating, and in others by the stencil and spray method. Because of the type of object to which the finish is to be applied it is necessary that we have a material which gives exceptional adhesion.

Through your research department we would also appreciate receiving information relative to the proper procedure for application of the finishes which you recommend.—S. E. Co.

Several concerns that advertise in this magazine can supply excellent coatings for glass. In a letter we are suggesting the names of some firms located convenient for you.—ED.

Questions and Answers

Textile Color Cards and Color Forecasts

We would like to have information regarding Color Cards, as issued by The Textile Color Card Association to its members. Could we obtain these yearly and seasonal Color Cards by subscription, or membership?

We are interested in obtaining these color cards in order to keep our members posted as to color trends, as they would influence color treatment on interior decoration.

Would it be possible to obtain a current issue of this Color Card, seasonal, or annual, by purchase? Any information you can give us will be greatly appreciated.—Joint Trade Board for the Painting Industry of Texas.

Your Joint Trade Board would be eligible for Associate membership in our organization, the dues for which are $30 per year, payable in advance. Under this classification, you would receive a gratis copy of all regular season cards we issue in advance of each spring and fall, including the woolen and rayon editions.

Associate members do not receive our confidential advance swatches; and our color consultation service is not available to them.

We would like to call your attention to our master color card, the Ninth Edition Standard, containing 216 staple colors. This card is not included in the gratis service but all members receive a special discount . . . . After our membership requirements are filled, our various cards are sold separately to the trade. Our 1946 Fall Woolen Card and 1946 Fall Rayon Cards, each containing 40 colors, are priced at $5.75 per copy, payable in advance. However, as stated above, should you become an associate member, these cards would be included in your gratis set.—The Textile Color Card Association, 200 Madison Ave., New York 17.

To Make Paint Tests

We have just come across the illustrated article entitled, "Choice of Organic Finishes," by P. W. Prouty, which appeared in your November 1945 issue (pages 36 to 58). This article was very interesting and very complete. We are particularly interested in the paint tests and testing equipment, since at the present time we are investigating the standardization set-up in order to attain uniform finishes on the Ozalid White Print Machine.

In order to simplify the development of our test equipment we are wondering if it would be possible to obtain, through Mr. Prouty, further details of the test machines pictured in Figs. 1 and 5 for making hardness and impact tests? If it would be possible for us to obtain any available sketches or drawings of units which have already proved satisfactory, we

The Grind Never Lets Up!

There is no let-up in the fine grind which distinguishes O'Brien Industrial Finishes. The modern 5-roller mills and dust collecting system shown above combine to insure O'Brien users of the uniform smoothness and quality for which O'Brien finishes are famous.

There is an O'Brien finish for every industrial use. Write us concerning your needs—ask us to quote on your requirements.

O'Brien Varnish Company, South Bend 21, Indiana

O'BRIEN

INDUSTRIAL FINISHES

SINCE 1875

would find it very helpful. Anything you can do to aid us in obtaining this information will be appreciated.—Ozalid, Division of General Aniline and Film Corp.

Mr. Prouty, author of the article, is with Westinghouse Electric Corp., East Pittsburgh, Penna. You might write him.

An immense fund of new illustrated technical information on this subject can be obtained from the 650-page 10th edition of "Physical and Chemical Examination of Paints, Varnishes, Lacquers and Colors," by Henry A. Gardner and G. G. Sward. This is distributed by Henry A. Gardner Laboratory, Inc., 4723 Elm St., Bethesda, Maryland. Page size is 10½x11½-in. Exclusive of its heavy red and gold binding, the book is 1½-in. thick. At this writing we do not know the price of the book; it is probably expensive, but it does contain valuable authoritative information and many interesting illustrations.—ED.

Completion of this 1000-gallon Dowtherm kettle and another of equal capacity, just installed at the Arco Co. plant in Cleveland, Ohio, will each turn out batches of 1500 to 1800 gallons of resin used in making synthetic finishes. These finishes are being made in clearer whites which have already proved their ability to withstand long wear without discoloration.

Random Comment on the Industrial Scene

(Continued from page 10)

automobile makers would do well to study the streamlined principles of European designs, for adopting some foreign ideas could yield at least a 30 per cent gain in fuel economy alone.

This engineer contends that our cars are becoming "as much alike as mouth organs." He insists that we ought to devote less attention to smartness and a great deal more thought to sheer utility.

* * *

Television Prospects—If a study by Sylvania Electric Products, Inc., proves correct, sales of home television receivers may approximate 10,000,000 sets during the next five or six years. However, there is a big "if" attached to this prediction; it is based on the availability of good telecast facilities in all urban areas.

It is estimated that about 28% of home radio owners are now located within range of existing television transmitters. Of this group, 45% have stated that they either definitely plan to buy a television receiver, or are considering such a purchase.

* * *

That Atomic Age—Is the use of atomic energy for industry just around the corner? The consensus

Remember Pearl Essence for

A Decorative Finish

MEARLMAID Pearl Essence is being used on hundreds of different products to produce a decorative and attractive effect.

Investigate the numerous advantages of a Mearlmaid Finish before you select the final coating. Its sales appeal and merchandising value are important.

THE MEARL CORPORATION

153 WAVERLY PLACE NEW YORK, N. Y.

Factories

ROSELLE, N. J. EASTPORT, ME.

Has High Reflective Light Value

For Dials Controls Instruments

WORLD'S LARGEST PRODUCER OF PEARL ESSENCE

of expert testimony at the recent annual meeting of the Edison Electric Institute was that anywhere from five to ten years will be required for real progress.

Dr. Kenneth H. Kingdon, of General Electric Company's research laboratory, is fully confident that the uranium atom will be harnessed as a source of power. But he contends that there are several serious problems which remain unsolved in the development of atomic energy, although they "do not seem insuperable."

Some of these obstacles, he points out, are concerned with operating the uranium pile at high temperatures for power generation, efficient use of raw material, and long periods of continuous operation.

* * *

Cars of Tomorrow—A glimpse of how our 1950 automobiles may look was offered at the gathering of the Society of Automotive Engineers several weeks ago. The general impression given at this conclave was that cars of the future will be equipped with supercharged engines with extremely high compression ratios, independent wheel suspensions, hydraulic steering, rubber torsion springs.

Some noteworthy recommendations were also submitted for the design and construction of motor trucks and trailers. One engineer predicted that tomorrow's heavy duty vehicles will give a million miles of service, averaging 100,000 miles annually for a decade.

* * *

For Readers—Subscribers to *Industrial Finishing* are reminded that tickets for many leading radio broadcasts may be obtained from this department on request. When planning a trip to Manhattan, drop a line to: *Lawrence H. Singer, 130 West 86 St., New York 24, N. Y.*

Among the cooperating sponsors are: Camel Cigarettes ("The Bob Hawk Show"); Anchor - Hocking Glass Corp. ("Hobby Lobby"); and Palmolive Shave Cream ("Can You Top This?").

New England Sales Office For Southern Lacquer Co.

The Southern Lacquer Co., Baltimore, Md., has opened a New England sales office under the supervision of Mr. P. W. Binckley, who has been with the firm for several years. The office is located at 285 Washington St., Somerville, Mass., and the telephone is Somerset 3518.

Young A. L. Cohen Joins Detro Sales Co.

Phil Cohen, President of Detro Sales Co., Los Angeles manufacturer of tack rags, announces that his son, Arthur L. Cohen, honorably discharged from the Army, has joined the organization as a partner. The firm has expanded its facilities and is preparing several allied products for the market.

Mitchell-Bradford Announces Reorganization

Mitchell-Bradford Chemical Co., 2446 Main St., Stratford, Conn., manufacturer of "Black Magic" blackening processes and "Silco," a glass-base sprayed and baked coating, has reincorporated as the Mitchell-Bradford Chemical Co., as of May 1, 1946.

Officers of the corporation are A. J. Mitchell, President; J. W. Mitchell, Vice President; and M. F. Mitchell, Secretary, Treasurer.

A. J. Mitchell has been active in the management and chemical research of the company, and is a founder of the original company. He is the principal stockholder in the new corporation and will continue in active management.

A mid-western office is maintained at Chicago, Ill., under the supervision of Mr. William H. Price, Jr. The company has warehouse stocks in Cleveland, Chicago and San Francisco.

Let our Creative Studio conceive a suitable finish for your product, and you'll be sitting pretty, too! • The many manufacturers who already have placed their finishing problems in the hands of our capable staff, know from experience that our made-to-order coatings have helped to increase the saleability of their products. • If we can be of any assistance to you, be sure to take advantage of the service we offer. Reputable firms will find there is proof . . . at no cost or obligation. Send us a sample of your merchandise. We'll give it the sales-tempting finish it requires.

No Tampering with Quality

ROCKFORD VARNISH Company
ROCKFORD ILLINOIS

Manufacturers of Protective and Decorative Coatings

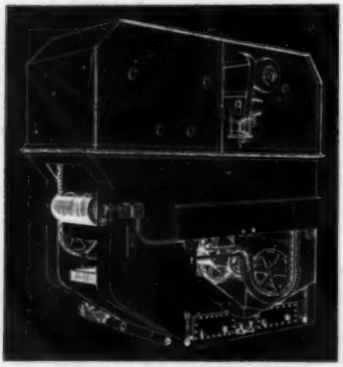
Materials Supplies Equipment

New Type Vapor Degreaser

In addition to its present line of metal degreasing equipment, Detrex Corp., Detroit 32, Mich., has introduced a new standard conveyorized one-dip concentrator to the metal cleaning industry.

Called the "1 DC-750," this degreaser is small and compact. Designed to degrease small miscellaneous parts, it is ideally suited to small shops where floor space is at a premium. The machine occupies less than 75-sq. ft. of floor space and measures 9-ft. 9-in. in height.

The unit may be supplied with rotary or a combination of rotary and flat baskets. Rotary baskets are 10-in. diameter by 20-in. long. Work to be cleaned is loaded at one end of the degreaser, carried through the cleaning cycle, and returned through the upper hood to the same end of the machine for unloading. The conveyor system is complete with sprockets, shafts, take-up device, speed reducer and variable-speed drive. All of the sprockets below the vapor line are zinc plated, as are all crossrods and conveyor chains.



Parts are carried through in baskets.

New Metal Coating Meets Severe Requirements

The Watson-Standard Co., Pittsburgh, Penna., has expanded its Vyncote Division in order to meet increasing demands for its series of vinyl plastic coatings for application in the metal products industry. The division now has independent technical and production personnel in a separate building which is complete with modern facilities for research and production.

Experience gained through extensive wartime research has led to the development of vinyl plastics is solution for application to metal products including aluminum and magnesium. The Vyncote plastics form a flexible surface film that retains all the properties of solid plastics. The coatings resist water, grease, oil, chemicals, heat, etc.; and are adaptable to any baking cycle whether it is one of seconds or hours. Some suggested uses of the Vyncote prescription coatings compounded to individual requirements follow: Coating for beer and food cans, oil cans, drums and pails; interior and exterior

NEW PERIOD
Production Finishes
BAKING ENAMELS
LACQUERS SHELLAC
ENAMELS FILLERS
SEALERS SUPPLIES
PRIMERS STAINS
SYNTHETICS VARNISHES
YOUR FINISHING PROBLEM?
Materials, methods, tight schedules or any other finishing problem is the oil that keeps the flame of enthusiasm burning in our laboratories. Manufacturers are invited to submit their finishing problems to us, no obligation of course. You will get prompt service and sound recommendations based on a special study of your problem supported by continuing studies of new materials and methods plus a background of many years experience.
NEW PERIOD LACQUERS are formulated to meet specific requirements and are helping to set new records in production schedules. They are easy to apply and produce a beautiful finish.
The complete NEW PERIOD line includes sealers, gloss, semi-gloss, clear and pigmented lacquers.
A production sample at our expense, will convince you of its superiority.
NEW PERIOD
Production Finishes
ESTABLISHED 1917
NEW YORK WOODFINISHERS' Supply Co.

linings for collapsible tubes; lining for refrigerators and stoves and also as an exterior finish for both; chemical resistant lining for chemical containers of all types. A special Vyncote coating for coil water-heater jackets will resist heat as high as 500° F. in this application.

Vyncote is completely inert, non-toxic, tasteless and non-inflammable.

For many years plastic coatings were made with low solids and dissolved in relatively expensive solvents which were usually lost during the drying of the film. One of the Vyncote plastic coatings series is the result of a new method which utilizes inexpensive solvents and high solids, effecting important savings in application costs. Watson-Standard has recently developed one of the Vyncote series that is being supplied commercially at 60 per cent solids. This coating gives excellent resistance to chemicals, grease and water, and has remained stabilized under ultraviolet exposure for 24 hours without discoloration.

The Vyncote series of prescription vinyl plastic coatings are available in colors or water-clear to suit individual requirements as to use and method of application.

Vapor Degreasers for Cleaning Metal

The Phillips Mfg. Co., 3475 W. Touhy Ave., Chicago 45, Ill., has brought out two new vapor degreasers—The Phillips "Duo" and the Phillips "Super" Vapo-Kleen.

These new degreasers offer extremely safe operation through the use of Phillsolv, a 100% noninflammable cleaning solution which eliminates hazardous gasoline wash. They are exceptionally efficient, completely cleaning and drying oily, greasy parts in from one to five minutes, depending on what is to be removed from the parts.

The essential difference between the two models is that the Phillips "Duo" is designed to handle basket loads or parts up to 12-in. in diameter, whereas the Phillips "Super" is a heavy duty degreaser large enough to degrease automotive motors.

The Phillips "Duo" is offered complete with pre-dip tank, electrically heated vapor tank, controls and thermostat totally enclosed in a metal cabinet with cover. It cleans by dip, soak or vapor, or any combination of these.

The Phillips "Super" likewise is completely contained, offering an added feature of a pressure spray hose for flushing stubborn grease and oil deposits. The "Super" also incorporates the Phillips patented feature of reclaiming its own dirty solvent automatically, by distillation.

For safe, quick, efficient cleaning.

ANOTHER
RANDOLPH ACHIEVEMENT!

A Really Reliable

TEXTURE (WRINKLE) ENAMEL

Prompt Shipment

DOPES · LACQUERS · ENAMELS

RANDOLPH

FINISHING PRODUCTS CO.

Carlstadt New Jersey

Wipe-In Colors for Painting Recessed Designs, Letters

Keeler & Long, Inc., Waterbury, Conn., announces Wipe-In or Fill-In Kolors for painting recessed or sunken letters and various ornamental designs. Wipe-In Kolors are supplied in paste form, in black, white and several standard colors.

Paste Wipe-In Kolors should be reduced with thinner to a creamy consistency, and applied directly over the surface to be filled. The article is then allowed to stand until the Wipe-In film has started to set, which is indicated by a flattening of the film. The excess material is then wiped off, wiping across the depressions. If the Wipe-In has not sufficiently dried, it will tend to wipe out. If it has dried too far, it will adhere too firmly, and the excess material will be removed with difficulty. Experience will indicate a point for proper wiping. Conditions of humidity, temperature, and types of thinner affect the time interval.

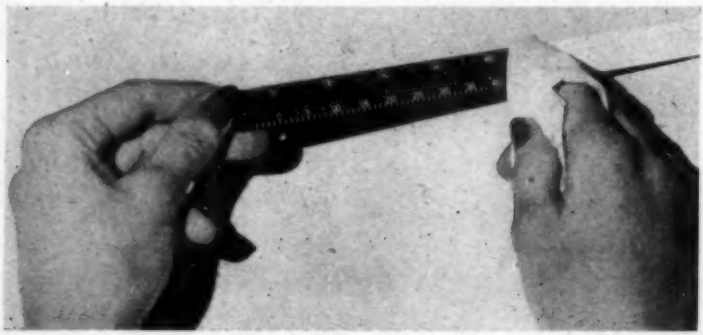
Wiping may done with a clean, soft absorbent cloth or soft clean tissue wrapped around the finger, or by placing the article on a revolving spindle and holding a clean cloth or tissue against its surface.

Depressions to be filled should have a depth of .004-in. Where the surface is first coated with an enamel, depressions should be .006 to .008-in. which will allow for average enamel film thickness. Narrow depressions are, in general, most easily filled. These colors are formulated to wipe off freely and powdery without stain.

Plastic Coating Protects Bottles of Acid

Tough nitrocellulose plastic-coated bottles in which corrosive liquids can be shipped or stored without danger of the liquid leaking out if the bottle is broken, appear to be the answer to one of the chemical industry's oldest problems. The coating provides a protective armor around the bottle and holds its shape, even though the glass underneath is shattered.

This plastic coating is so tough that when test bottles containing sulphuric acid were thrown against a metal wall with sufficient force to break all of the glass, the coat-



Demonstrating the merits of wipe-in colors for fast, clean production.

IN STEP WITH THE TIMES

Industrial Finishes

that make the most of available raw materials to give you greatest durability, together with attractive appearance and economy.

• FOR APPLICATION BY ALL METHODS

JAMES B. DAY & CO., CHICAGO

ing retained its shape and prevented the sulphuric acid from seeping through.

The coating has other merits. It is transparent and can be colored with dyes for identification purbottle which, if not covered, freposes. It protects the label on the quently becomes illegible through handling and wear and tear. Also, the bottles can be washed without affecting the qualities of coating.

The nitrocellulose coated bottles were developed by the Detroit Macoid Corp., Detroit, Mich., during the war and are expected to find wide acceptance for use in laboratories and plants where corrosive liquids are used and stored, as well as for shipping these liquids.

At the present time one gallon bottles are being coated. The bottles are dipped into a solution based on Hercules Powder Company's nitrocellulose. When the excessive plastic has dripped off an even film of from 20 to 25 thousandths of an inch remains on the bottle.

Coprene Enamels For Many Uses

Coprene Enamels, formulated with a modified synthetic rubber base, are chemically resistant, air-drying, high-gloss finishes now being manufactured to meet peacetime production demands, according to an announcement from Maas & Waldstein Co., 438 Riverside Ave., Newark 4, N. J. These coatings had been produced only in limited quantities during the war because of restrictions on raw materials.

Available in most colors, Coprene enamels are recommended for use on steel and most other metals, wood cabinets and furniture, air conditioning equipment and other products requiring a chemically resistant, air-drying or baking finish. They are tough, flexible, and resistant to outdoor exposure.

Coprene enamels are also made with metallic powders to produce metal-like coatings (Coprene Matalustre Enamels) and finishes that resemble hammered metal.

Costume Jewelry Enamel

Developed by the H. V. Walker Co., Elizabeth, N. J., the enamel, Porciflex, has fast-drying qualities. Once baked, it is impervious to acids, oils and alkalis, and has a minimum tendency to discoloration.

Many manufacturers making

Porciflex finished costume jewelry.

It's Tough—tougher than the ordinary lacquers!

Yes, here's a tough piece of goods, a lacquer finish that will meet the most critical requirements of current production. Try it out; give it all the tests necessary to satisfy yourself and you will accept nothing less than this product finish that endures the elements, and the hardships of constant usage. Schaefer's Mar Proof Lacquer is a finish that cannot be marred or scratched. Made in either clear gloss rubbing or satin finish, it produces a splendid transparent coating of full depth on maple, walnut, gum, mahogany and other cabinet woods. Economical; gives plenty of coverage; dries quickly. Our Mar Proof Lacquer Sealer is recommended with it for a first-coater.

A Schaefer Mar Proof Lacquer finish will give you the best start in this most critical period. Use this tough mar proof lacquer, and obtain satisfaction right away. Working samples furnished without obligation. Write for them!

THE SCHAEFER VARNISH COMPANY, INC.
Louisville, Kentucky

THUMB-NAIL IT!

Try to scratch or mar it! Cannot be marred or scratched!

costume pieces which must withstand hard wear, have found this Porciflex finish the answer to their problem.

The low cost of finishing these pieces enable the makers to introduce new models to the market with greater frequency, an important factor when a teen-age buying public is being considered. In addition, the bright, high gloss colors of Porciflex makes these enameled pieces more effective as counter display pieces.

Infra-Red Heat Lamps

A new, safer R40 infra-red Hi-Heat Lamp is announced by Radiant Lamp Corp., 300 Jelliff Ave., Newark 8, N. J. The new lamp is made of special heat-resisting glass to reduce the hazard of breakage caused by thermal shocks. This is especially desirable in drying ovens containing volatile fumes. Hi-Heat Lamps have R40 bulbs, and are available in 250 and 375 watts.

Match-O-Stain Color Card

Eighteen popular wood finishes in true colors, ranging all the way from white to black (blond glaze, harvest, wheat, orange red maple, medium red mahogany, etc.) on thin plywood samples, are included in a new folder being distributed by H. Behlen & Bro., Inc., 10 Christopher St., New York 14, N. Y.

The Match-O-Stain folder gives complete directions for quick matching-up, blending and color padding—for new and repair finishing in production factories, retail stores and small repair shops.

Match-O-Stain features a new type coloring and staining material for speedy and permanent renovations on all shades and kinds of clear wood finishes. To save time in matching-up and blending, the coloring compounds have been formulated and selected with extreme care for application by pad to bare and damaged areas.

"Filmite" for Coating Spray Booths

The DuBois Co., Cincinnati 3, Ohio, manufacturers of chemical cleaning compounds announces a new product, Filmite, a non-drying film that prevents paint overspray from sticking to dry walls of paint spray booths. The paint overspray gradually builds up a layer on the outside of the Filmite which can be *peeled off* or scraped off very easily and quickly. It reduces fire hazards as it is non-inflammable. You spray it on, spray your paint and peel off coated Filmite.

The DuBois Co. also manufactures Klarifiant, a "twin action" water wash compound for water curtain spray booths. Its dual action neutralizes the scale forming attack of lime and magnesia present in water and eliminates paint sludge in hydraulic systems. Klarifiant gives a close approach to perfection in the operation of wet spray booths. A booklet on DuBois spray booth compounds will be sent on request.

"Cellophane Spangles" Now Available

Rayon Processing Co. of R. I., Inc., Central Falls, Rhode Island, is now in production on "Cellophane Spangles" a surface coating consisting of very finely cut particles of cellophane. Produced at

Demand the Genuine! *Insist that your supplier provide you with non-grain-raising wood stains and stain-fillers manufactured under the Chadeloid patents. The following are*

AUTHORIZED

manufacturers of Chadeloid non-grain-raising, non-bleeding, color-true wood finishing products:

Adams & Elting Co.
Advance Paint Co.
American Paint Works
Atlantic Lacquer Mfg. Co.
Atlas Powder Co. (Zapon Div.)
Ault & Wiborg (Div. Interchemical Corp.)
Bigelow Varnish Co.
Billings-Chapin Co.
T. L. Blood Co.
Boston Varnish Co.
Andrew Brown Co., Inc.
A. C. Buschman & Co.
Campbell Paint & Varnish Co.
Carosel Chemical Co.
Carpenter-Morton Co.
Chicago Bronze & Color Works
Cincinnati Varnish Co.
Clover Leaf Paint & Varnish Corp.
Cudner & O'Connor Co.
H. B. Davis Co.
V. J. Dolan Co.
Ferrell Paint Co.
Flood & Conklin Co.
Forest City Paint & Varnish Co.
Foy Paint Co., Inc.
W. P. Fuller & Co.
Glidden Co.
Grand Rapids Varnish Corp.
Grand Rapids Wood Finishing Co.
C. W. Haynes Laboratories, Inc.
Heath & Milligan Mfg. Co.
A. C. Horn Co., Inc.
Indianapolis Paint & Color Co.
India Paint & Lacquer Co.
Interchemical Corp., Finishes Div.
Jamestown Finishing Products, Inc.
R. F. Johnston Paint Co.
C. E. Krieger Co.
Lawrence-McFadden Co.
Lenoir Wood Finishing Co.
Lilly Co.
Lilly Varnish Co.
Lindeman Wood-Finish Co.
Maas & Waldstein Co.
New England Coating Works, Inc.
Newark Varnish Works
Nubian Paint & Varnish Co.
N. Y. Woodfinishers' Supply Co., Inc.
Palmer-Price Co.
Perfection Paint & Color Co.
Robertson Co.
Rockford Varnish Co.
Roxalin Flexible Finishes, Inc.
Rudd Lacquer Corp.
Schaefer Varnish Co.
Scriver & Quinn, Inc.
Edward J. Shannon Co.
Southern Varnish Co.
Gilbert Spruance Co.
Sun Chemical Corp.
R. H. Thorpe Paint Co.
Tomlinson Paint & Varnish Co.
Trojan Lacquer Co.
Twin City Varnish Co.
U. S. Lacquer & Chemical Co.
L. R. Van Allen Co.
Wabash Products Co.
A. Wilhelm Co.
John H. Witte & Sons
Wolverine Finishing Materials Co.
Woodfinishing Products Co.
CANADA
Murphy Paint Co., Ltd.
Penfound Varnish Co., Ltd.

Any industrial finish manufacturer who maintains our standards is eligible for a license.

CHADELOID CORPORATION

1771 SPRINGFIELD ST. • DAYTON 3, OHIO

U. S. PATENTS—1,877,748—1,898,247—1,930,768—1,977,345—2,000,120—2,000,121—2,044,770—2,093,424—2,105,984—2,161,503. CANADIAN PATENTS—330,344—343,162—343,163. Applications pending.

present only in white ("clear") the spangles when applied to a surface give it a distinctive sparkle due to the reflection of light by the millions of tiny facets. Generally speaking, "Cellophane Spangles" are applicable anywhere that flock is used for decorative purposes: on greeting cards, box papers, novelty covers for books, memos, etc., displays, signs, packages.

With reference to textiles, it can be applied by dot printing in a manner similar to flock. For colored transparent plastics, it can be used as a novelty filler, giving a distinctive crystalline effect. When used as a decorative coating, clear spangles achieve a colored effect by using colored adhesive. The lively sparkling finish produced is not only distinctly novel, but also tough and durable. Spangles may be applied to paper, cardboard, cloth, wood, plastic, metal, rubber, glass—in fact, practically any surface, either plain or irregular.

Belt Grinder for Smoothing

The Porter-Cable Machine Co., Syracuse, N. Y., announces a new addition to its line of abrasive belt grinders.

A light, narrow belt grinder attachment, type N-2, has been developed for performing all kinds of light burring and grinding operations. Combining the versatility of platen grinding with the economy and speed of contact grinding it is ideal for light grinding and smoothing of flats, arcs, angles, weld grinding, cleaning up operations, etc. A wide variety of composition and plastic materials, as well as steel, aluminum, wood and glass are easily ground and surfaced.

Coating for Fiber Rugs, Auto Seat Covers

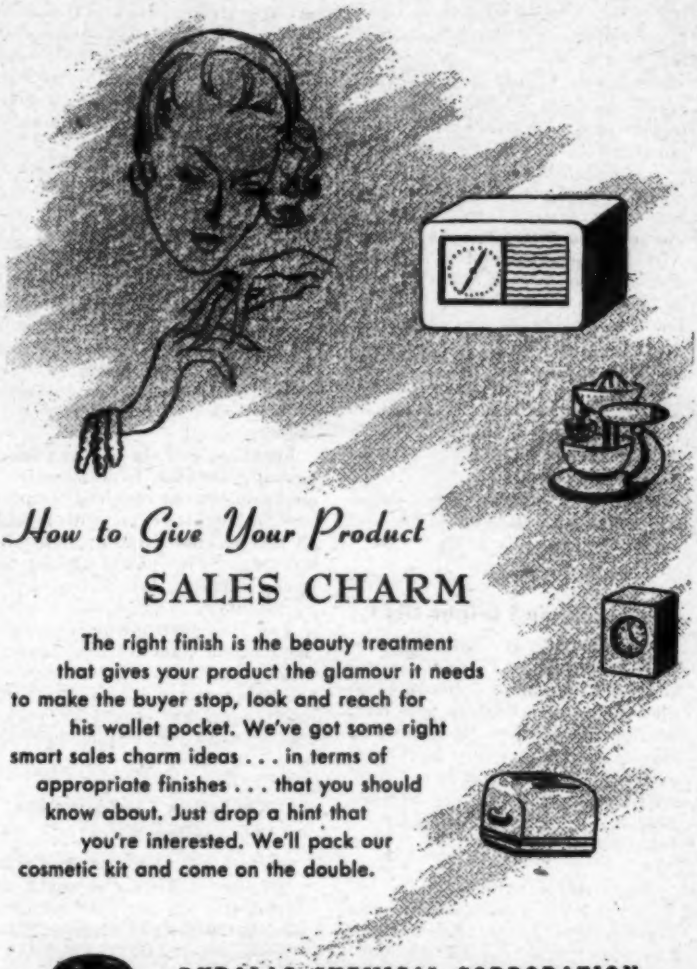
Functional and decorative possibilities of vinyl butyral have been broadened through continuing research to the point where Monsanto Chemical Co., St. Louis 4, Mo., foresees its wide use not only as a textile coating, but also as a material to greatly enhance the serviceability and appearance of paper fiber rugs, mats and automobile seat covers.

Properly applied to paper twine, vinyl butyral has the effect of imparting resistance to water, wear, mildew and fading. Additionally, a plastic-protected item is far more attractive than a companion untreated item.

Vinyl butyral is already in use as a fabric coating. Used in this connection, a super-thin layer of the transparent plastic makes possible waterproof and stainproof upholstery, table cloths, crib sheets, draperies and other textiles with very little change in either feel or appearance. The plastic coating permits such articles to be cleaned with a damp cloth.

Improved Air Filter

The latest addition to the American Air Filter Co.'s line of electronic air filters is the Electro-Airmat in which the collector element is electrostatically charged Airmat paper. Introducing an entirely new principle in electronic air filtration, the arrestance rating of the Electro-Airmat, when tested by the discoloration method, is 90% or better with atmospheric dust or smoke. This efficiency is obtained at the normal velocity of 35-f. p. m. through the Airmat media and the standard rating of 1000-c. f. m.



How to Give Your Product

SALES CHARM

The right finish is the beauty treatment that gives your product the glamour it needs to make the buyer stop, look and reach for his wallet pocket. We've got some right smart sales charm ideas . . . in terms of appropriate finishes . . . that you should know about. Just drop a hint that you're interested. We'll pack our cosmetic kit and come on the double.

SEA-LAC

DURALAC CHEMICAL CORPORATION

LISTER AVENUE, NEWARK 5, N. J.

per standard-sized 24x24-in. unit. The filter weighs 40% less than Electronic filters having metal plate collectors and requires 30% less floor area.

Airmat is American Air Filter's trade name for a cellulose product composed of a number of plies of porus, tissue-like sheets formed of short cellulose fibers in "jackstraw" arrangement. It is unlike any other filtering media. When an electrostatic charge is applied to Airmat, the plies tend to separate and each individual fiber becomes a collecting electrode which attracts and holds the dust and smoke particles. Airmat is also a highly efficient mechanical filtering media; thus, when the power is off for any reason it affords ample protection against the infiltration of dust due to "stack effects" in air-conditioning systems.

For further information, write American Air Filter Co., 125 Central Ave., Louisville 8, Ky.

"Luster-on" Bright Dip

"Luster-on" is an inhibited bright dip devised for use on solid zinc or zinc-plated products to give amazing brilliancy and long-lasting protection. It is an exclusive development by the Chemical Corp., 54 Waltham Ave., Springfield 9, Mass., finishing engineers. Luster-on's formula is fully protected by patent application.

Luster-on produces bright surfaces and gives passivity to electro-deposited zinc from either cyanide or acid-type plating baths. This means that a Luster-on treated surface is resistant to stain, tarnishing with age, or white corrosion products. A Luster-on finish may be handled freely during assembly or packing without fingermark disfigurement. Luster-on does not impair electrical conductivity or interfere with spot-welding, and provides an adhesive base for lacquers and cements. It gives to zinc plate an aging resistance equal to cadmium plate. It can also be used on cadmium, brass or magnesium.

Midget Electric Tank for Hot Coating

A new portable, plastic coating melting tank of one gallon capacity has been specially designed for the protective coating of plugs, gauges, carbide tipped tools, etc., by Aeroil Products Co., West New York, New Jersey.

Features include accurate thermostatic controls to automatically maintain heat at required temperature; removable cover with insulated plastic knob handle; neon pilot light for swift visual check; and handy carrying handle for ease in portability.

The 1000-watt elements are connected by a standard 2-prong plug. Since total current requirements are equivalent to that of an ordinary domestic electric iron, no special fuses or wiring is necessary.

"Clearflex" Lacquer for Glassware

A clear, quick-drying lacquer with high adhesion strength, designed for use on glassware, has been developed by H. V. Walker Co., of Elizabeth, N. J. Called "Clearflex," this new lacquer was originally compounded for use in finishing Christmas tree ornaments, an industry with a large concentra-

Specify Finishes of Synthetic

VELVET
VELOUR
SUEDE
FELT
MOHAIR
CARPET

with RAYCO *Flock*

FUNCTIONAL USES

Used in the auto, airplane, radio, electrical, phonograph, ceramics, furniture and many other industries for surfacing all sorts of materials to provide

SOUND DEADENING • TEMPERATURE INSULATION • INTEGRAL GASKETS • SHOCK ABSORBING SURFACE • NON-MAR SURFACE • NON-GLARE SURFACE.

DECORATIVE USES

Applied in various lengths and colors to wood, paper, cloth, metal, etc., the following effects are produced—

SUEDE LEATHER • FURNITURE UPHOLSTERY • INTERIOR AND DRAPERY FABRICS • VELVET • VELOUR • MOHAIR.

Flock enables you to coat selected areas of your product with synthetic finishes of rich texture and color. Applicable to plain or irregular surfaces, any material. Obtainable in all sorts of coatings on paper, cloth, rubber-backed carpet, upholstery fabrics, etc. The possibilities are infinite. Let us send data.

REQUEST: "SURFACE COATING WITH FLOCK"

RAYON PROCESSING CO. of R. I. INC.

55 TREMONT ST., CENTRAL FALLS, RHODE ISLAND

tion of factories in New Jersey. Many other industrial applications have been worked out, however, in processes where a lacquer for glassware is indicated.

The result of seven years of experimentation in the Walker research laboratories, Clearflex was recently approved by one of the nation's largest manufacturers of blown glass products.

Transparent and jewel-toned, Clearflex dries in three minutes and is a free-running, non-clogging, dipping medium. It has the added safety factor of being burnproof, an important consideration in dipping operations.

Used as a finish for Christmas tree bulbs and ornaments, Clearflex has been found to cut production time appreciably. In processing the bulbs, the desired form is blown, then dipped in lacquer and the stem broken off to finish the operation.

The unusually high adhesion strength of Clearflex eliminates blistering, peeling and cracking of the finish during processing and in after-use. This also eliminates much of the previous need for special handling of the bulbs during finishing and packing, to minimize chipping of the finish.

"Klearlak" Coating Stands High Heat

The Hytemp Klearlak protective coating was developed in response to an insistent demand from industrial users for a tough and durable coating—one that would bond firmly to metal or wood; have high ductility and elasticity; be fume-resisting, waterproof and acid and alkali protective; and "set" with or without the necessity of heat.

Air-setting (or low temperature baking if desired to hurry the drying time) Klearlak dries clear and lustrous; will not flake or strip off; insulates against ordinary electric voltage; is not affected by heat somewhat in excess of 500° F.

Used full strength for maximum protection, the coating dries to about .002-in. thickness, but may be thinned out to suit by the addition of turpentine or turpentine substitute thinner. Coverage, over 650-sq. ft. per gallon on metal; on brick or wood, somewhat less.

One coat is usually sufficient; apply by brush, spray or dip. Klearlak lends itself to a wide variety of industrial uses. It is a product of Geo. R. Mowat Co., 24 W. 40th St., New York 18, N. Y.

Rubber Base Paint for Concrete Surfaces

Even though there is only a small amount of alkali in concrete, nevertheless that small percentage is powerful enough to do a great deal of damage to ordinary paint. Since paint, varnish and enamel protective coatings have always been made of vegetable drying oils, they have always been sensitive to the alkali in concrete surfaces.

Paratex is a coating devised to free users of the alkali handicap. Paratex contains no vegetable oils but is strictly a rubber resin formulation not affected by alkali. It is therefore very resistant when used as a coating on concrete floors, especially basement floors.

The same chemical inertness that makes Paratex resistant to alkali, also makes Paratex resistant to chemicals of all kinds, acids, salts, etc. This is what makes

New Egyptian Building at South Kearney, N. J.

Sales, advertising and accounting departments of Egyptian Lacquer Manufacturing Company have moved into a modern home recently erected on the company's factory site at South Kearney, N. J.

The new structure, in proximity to Egyptian's laboratory and manufacturing facilities, increases our ability to serve you. Please note the new address and mark your records accordingly.

Executive headquarters remain at Rockefeller Center, New York City.

THE EGYPTIAN LACQUER MANUFACTURING COMPANY
JACOBUS AVENUE, SOUTH KEARNEY, N. J.
MAIL ADDRESS—P. O. Box 444, NEWARK, N. J.

EGYPTIAN FINISHES
EGYPTIAN
SPECIALIZED PRODUCTION FINISHES

Paratex Rubber Base Coating such a desirable coating for outdoor exposure where the effect of of rain, sunshine, alternate wetting and drying, chemical fumes, etc., do a great deal of damage to protective coatings.

Paratex is a product of Truscon Laboratories, Inc., Caniff & Grand Trunk R. R., Detroit 12, Mich.

Finger-Print Remover Tectyl 472

Tectyl 472 is a low-viscosity solvent useful for temporarily coating metal surfaces, especially steel, to remove fingerprints and prevent stains or rust by fingerprints. It is a rapid water displacer. The coating gives protection to metals stored indoors for as long as two months. It can be applied by dipping, spraying or brushing. It is a product of Freedom-Valvoline Oil Co., Freedom, Penna.

Sparkproof Floor

Here are some quick features of a new type of hard, wear-resistant floor that is safely sparkproof, which is essential whenever paints, finishing materials, solvents and certain types of cleaners are used.

1) Six times more wear resistant than ordinary concrete floors;

2) No possibility of frictional sparks from contact with metallic objects;

3) No static electrical spark hazards;

4) Not affected by hot water or steam;

5) Improved resistance to corrosive materials;

6) Decreased absorption of disintegrating solutions, etc.;

7) Does not warp or buckle;

8) Easy to install and maintain.

Floors of this kind meet all requirements of Army Ordnance Safety Bulletin No. 25, and are approved by Navy Ordnance. They have been investigated and approved by the Inspection Department of the Associated Factory Mutual Fire Insurance Companies.

This material has been used extensively in various industries where a sparkproof floor is necessary. A "Masterplate" floor not only gives a sparkproof static disseminating floor, but one that is five or six times more wear resistant than a plain concrete floor.

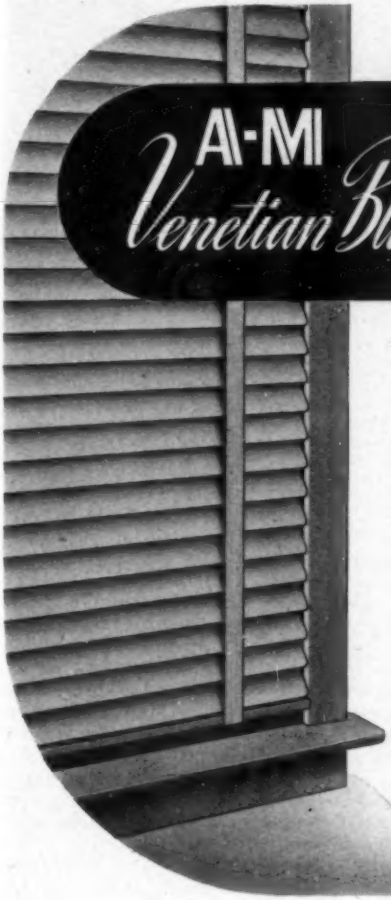
The material can be supplied in a range of colors where color is important from the standpoint of detection of materials dropped on the floor. It is a product of The Master Builders Co., 7016 Euclid Ave., Cleveland, Ohio.

Concentrated Metalprep for Export

The Neilson Chemical Co., 6564 Benson St., Detroit 7, Mich., now has available a highly concentrated grade of Metalprep for export use, especially packed in standard export shipping crates. Metalprep is used for removing rust from sheet metal surfaces, and preparing the metal for paint.

Organic Chemicals Booklet

A new 12-page booklet, "Physical Properties of Synthetic Organic Chemicals," has just been issued by Carbide and Carbon Chemicals Corp., a Unit of Union Carbide and Carbon Corp., 30 E. 42nd St., New York 17, N. Y. Data on the physical properties, and applications for more than 175 synthetic organic chemicals are presented in tabular form for ready and easy reference. This booklet has been designed as a condensed guide for research chemists, laboratory technicians, and purchasing agents. Copies can be obtained without charge by writing to the company.



A-M Venetian Blind Finishes

for WOOD, STEEL ALUMINUM . . .

To meet the needs of the ever expanding Venetian blind industry, the laboratories of American-Marietta are constantly working to produce new and better blind finishes. The skill of practical, experienced technicians is continuously developing finishes with greater eye-appeal, finishes that cut your production costs, yet give durability and beauty to the finished product. Unable to supply the entire demand for these superior finishes at the present, nevertheless A-M experts at all times strive to maintain their position as leaders in the development of new and improved finishes.

A-M FINE FINISHES

One of the great names in paint making

AMERICAN-MARIETTA COMPANY

43 E. Ohio Street • Chicago 11, Illinois

Setup For Faster Finishing

BY S. J. TREZAC

MODERNIZING equipment and streamlining production processes return handsome dividends in the never-ending effort to make more goods in less time or at lower cost.

One striking example of this simple basic economic fact — one that holds particular interest to industrial finishing executives—is offered by the P. A. Geier Co. of Cleveland, Ohio, vacuum cleaner manufacturer. Here a new infra-red drying setup now does, in less than five minutes, a job that formerly required one hour and 45 minutes.

Virtually all of the 412 product components are conveyorized through infra-red heating units. First the parts are thoroughly cleaned and dried in a specially-designed degreaser. Then they are moved to the paint bath where, according to the color of paint required for a particular part, each piece swings into a dipping tank. Some vacuum handles, for instance, are black-japanned, while interior cleaner parts are varnished as a protective measure.

From cleaning and coating, the parts move into and through a tunnel of infra-red heat, after which they are subjected to final inspection. The entire process averages 4½ minutes; the prewar paint drying and baking system, utilizing hand-loaded ovens, took nearly two hours. The conveyorized infra-red technique was installed at the Geier plant during the war to boost the firm's output of aircraft parts and ammunition.

Besides this conveyorized setup, the company is installing new improved cleaning equipment to prepare vacuum cleaner parts for nickel and chrome plating. In seven operations, pieces pass through the bath onto racks for automatic plating. Before Pearl Harbor, these operations were performed manually. When all of the new equipment is in full operation, the concern expects to turn out 1500 vacuum cleaners a day.

Instances like this are being duplicated throughout the industrial finishing field. I cite this one purely as a typical example of a steadily growing trend in the direction of modernizing equipment and streamlining production routines. It points up management's increasingly awareness and appreciation of the vital importance that finishing today plays in the overall production picture, in so many factories working with metals.

Moreover, in the face of steadily stiffening competition on the one hand and higher wages and increased material costs on the other, establishing production economies and time-saving short-cuts becomes essential. They are the order of the day to effectively help offset these heavier burdens of doing business successfully.

Frequently such savings can be established without impairing product quality through modernizing equipment and streamlining process techniques—and more often than not, quality is improved in the bargain. That is why if soaring costs are plaguing you, making you "count sheep" at night, it may pay you to check and double-check your finishing line from stem to stern, to see whether obsolete equipment or time-consuming methods can be replaced with more production units or techniques.

CLAREMONT flocks

RAYON · COTTON · WOOL

Available in various length fibres. ✓

Particles finely cut, uniform — fluffy yet filling. ✓

Brilliant colors pastel shades . . . also neutral tones. ✓

Industrial uses include soundproofing insulation surface coatings protective finishes, etc. ✓

Decorative Simulations: Suede, velvet embroideries leather and upholstery fabrics. Readily applicable to glass, wood, metal, paper cloth, etc. ✓

Details, samples and prices upon inquiry ✓

Items shown flocked by Flock Process Co. Velvatone Div. 3 Quincy St. Norwalk, Conn.

Claremont *Flocked* Radio Grilles . . . Sweeter to the Ear — Smarter to the Eye!

When coated with Claremont Flock (in rich colors and two-tone effects in a variety of patterns), radio grilles afford the utmost in listening pleasure — straining-out raspy speaker vibration noises for ear satisfaction . . . while providing decorative enhancement for eye appeal. Flock samples and information upon inquiry.

CLAREMONT WASTE MANUFACTURING CO.
CLAREMONT, NEW HAMPSHIRE

Booklets Catalogs Circulars

Rip-pl Finish Bulletin Free

"Rip-pl Finishes" distinctive and economical wave line effects in five different patterns and a choice of a dull or gloss luster in the fine line effect, are described in a completely revised bulletin of the Hilo Varnish Corp., 60 Stewart Ave., Brooklyn 6, N. Y. Copy of Bulletin No. 15 dealing with the five Hilo Rip-pls for one-coat application over rough, nonporous surfaces is free.

Chart for Cost Reduction

Designers for Industry, Inc., of Cleveland, Ohio, announces the development of a "Visual Consultation Chart For Cost Reduction." This quick reference chart, printed in two colors, helps industry to pick out cost items which need study and gives remedies for 37 problems which contribute to today's high costs.

The chart, prepared in conjunction with The Bayless-Kerr Co. of Cleveland, covers the classifications of Direct Labor, Manufacturing, Overhead, Administration, Selling and Distribution, and Materials.

Because of the present widespread high costs of materials, manpower and equipment, this chart is especially timely and considerable interest has been shown by large manufacturers. A copy of this chart will be sent free of charge to concerns interested.

Free Book of Decal Designs Ready for Industry

Stressing the greater eye appeal of colorfully-decorated merchandise, the Meyercord Co., Chicago Decal manufacturer, is distributing a new loose-leaf catalog of stock Decal designs for product decoration now available to industry.

Hundreds of stock patterns designed for use on juvenile furniture, toys, glass ware, crockery, housewares specialities, bath fixtures, kitchen furniture and equipment and many other items are displayed in the new brochure.

Decals, the booklet points out, reproduce with perfect fidelity the finest designs at a fraction of the cost of hand decoration and are applied as the last step on the production line at production line speeds. They are washable, durable and resist the effects of spilled alcohol and other household mishaps.

The Meyercord studios and laboratories also create exclusive designs to order, which become the property of the user.

Meyercord Decals meet every decorating requirement and can be applied to wood, enamel, paint, all basic types of plastics, composition, every type and surface of metal, crinkle finishes and even to flexible materials and stretchable fabrics.

Sol-Klean Bulletin

A new bulletin about Sol-Klean, a phosphoric acid metal conditioner which prepares metal surfaces for painting, is being distribuied by Industrial Chemical Products Co., 3777 Bellevue Ave., Detroit 7, Mich.

According to the bulletin, treatment with Sol-Klean removes oil, rust and corrosive agents; etches metal and coats it with phosphate; and is non-inflammable and non-toxic.

Ross Air Heater Bulletin (Oven Heating)

The J. O. Ross Engineering Corp., 350 Madison Ave., New York 17, N. Y., has issued a new bulletin 135-A which gives complete information on its various types of direct and indirect air heaters designed for use of oil or gas fuel. This 16-page bulletin is fully illustrated and includes charts, diagrams and tables covering such subjects as operating principle and construction, application of various types, heating ratings and capacities.

Metal Parts Washing Bulletin

A new, illustrated bulletin, (No. 6E1), describing standard models of metal cleaning and drying equipment manufactured by the Optimus Equipment Co., 209 Church St., Matawan, N. J., has just been published.

Feature of the book is a table showing how seven basic type units can meet and handle 12 operating conditions. A minimum number of washing, rinsing, and drying machines, adaptable to a large number of metal processing operations, are fully described.

The manufacturer states that Optimus parts washing equipment is designed for ease and speed of handling. Many of the units are movable, and all are planned

Mac's FASHION
LACQUER PASTE FILLERS

RAPID-DRI AND OVER-NIGHT TYPES

Are specially formulated to withstand lacquer solvents and to prevent shrinkage and grayness.

Rapid-Dri Lacquer Paste Fillers oxidize in three to four hours ready for the regular finishing schedule. The Over-Nite type oxidize more slowly. They give excellent adhesion and provide a good foundation for the finish.

Available in all shades of mahogany, walnut and oak—also natural.

Write for new descriptive folder just off the press.

The Lawrence-McFadden Co.

Headquarters for Fine Finishes Since 1875

7430 STATE ROAD **PHILADELPHIA 36, PA.**

WORLD'S LONGEST FURNITURE CONVEYOR

Here is a view of the P-B Overhead Trolley Conveyor that has doubled the capacity of the Mengel Company Plant at Louisville . . . reduced in-process time 75% . . . lowered costs 40% . . . with a finish of superior quality.

PALMER-BEE COMPANY
DETROIT 12, MICHIGAN

PALMER-BEE
CONVEYORS

to take up a minimum of floor space. They can be used in connection with a wide variety of systems, with the parts being brought to the machine on belts, racks, or in baskets.

The machines described in the bulletin are also adaptable, in many cases, for use in drying operations, using hot or cold air, and steam, gas, or electrical heating.

Optimus Detergents, a companion product, for the cleaning of both ferrous and non-ferrous metals, are also described in the bulletin.

Floor Treatment Book Free

Book "B" is the sub-title of a new Specification Book just issued by the Truscon Laboratories covering floor treatments—concrete and wood. It is subdivided into 5 sections as follows:

1) "Integral" hardeners—metallic types, including non-slip hardener.

2) Chemical hardeners—liquids brushed or swept over concrete floor.

3) Concrete Dye, which is a patented article with Truscon.

4) Surface coatings: rubber-base floor coating, transparent sealer, and non-slip mastic or covering.

5) Wood floor preservatives including varnish.

Copies of Book "B" floor treatments may be had either by addressing Truscon Laboratories, Inc., Detroit 11, Mich., or any one of their divisional offices located at Boston, New York, Atlanta, Toledo, Chicago, Milwaukee, Houston, Minneapolis, Los Angeles, and Toronto, Ontario.

Standard Ninth Edition Color Card

The Standard Ninth Edition Color Card, created and issued by the Textile Color Card Association of the U. S., Inc., 200 Madison Ave., New York 16, N. Y., constitutes a valuable color manual for all industries and trades. This is not a card presenting fashion colors for one season only; it embraces a complete collection of important staple shades having continued popular acceptance. Shades in the card cover the color needs of all industries.

The shades assembled in the Ninth Edition Standard were adopted by a majority vote of the Association's members, representing practically every industry using color. To determine these color preferences the Association sent out thousands of questionaires, to which there was wide response.

This practical color manual portrays the shades in large fabric samples, mounted to show a dull as well as a shiny surface, thus enabling users to match brilliant, as well as mat surfaces. The majority of the colors have been repeated without change from the Standard Eighth Edition, while a few colors from the latter edition were also adopted in modernized versions. A good number of colors have been incorporated from the Association's seasonal cards, because through continued use, they have assumed importance as staples and have been requested by the members. Some entirely new colors having broad commercial significance have also been added. The colors are arranged in harmonious graduations of six, three and two shades and there are also groups of individual pastels and brilliant tones.

Incorporated in the Ninth Edition are many official colors which have been standardized for various uses by the United States Government and leading industrial associations.

Chadeloid Stain Bulletin

The Chadeloid Corp., 308 W. First St., Dayton, Ohio, has started distribution of its new bi-monthly publication, "Insure Your Stain Profits With Chadeloid Stains." The publication is to be distributed among manufacturers of wood products. Circulation is to be restricted to those organizations requesting it on business letterheads.

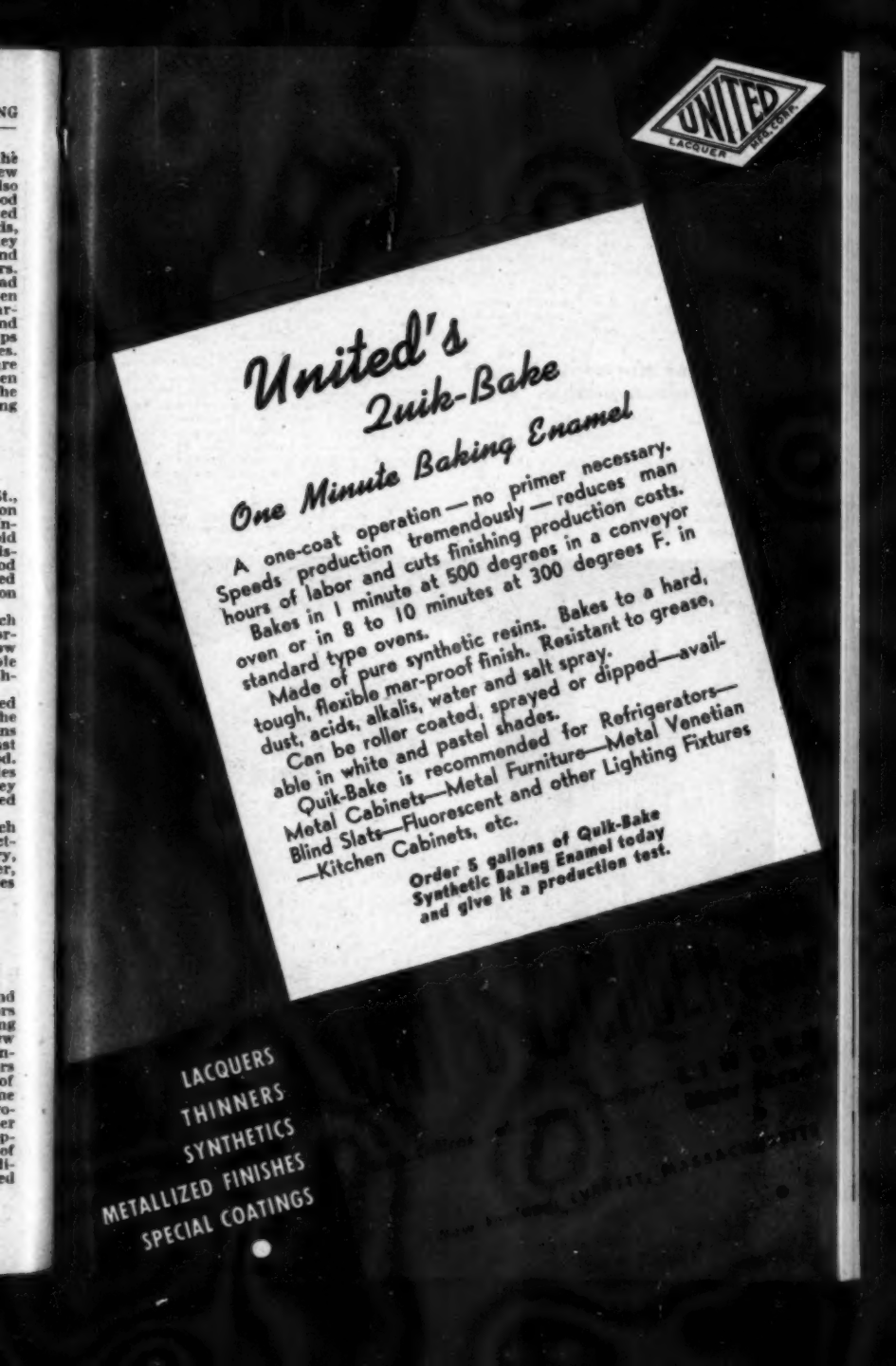
The objective of the Chadeloid research program is to make possible exact formulations reproducible on order, at low cost, without sacrifice of any desirable qualities of a stain for high-grade finishing.

The "Permanent Stains" manufactured under Chadeloid patents eliminate the disadvantages of previous wood stains in that they are non-bleeding, color fast and do not raise the grain of the wood. These stains make possible economies and high speed in finishing since they eliminate many operations required when water stains are used.

Chadeloid "Permanent Stains," which are made under license by 76 manufacturers in the industrial finishing industry, are also used for coating plastics, paper, fabrics, leather, furs, metals, glasses and other materials, as well as wood.

Finish Specifications for Hardwood Floors

New specifications for heavy duty and gymnasium finishes for hardwood floors have been released by the Maple Flooring Manufacturers Association. The new specifications replace those covering finishes for maple, beech and birch floors allowed to lapse because of shortages of material during the war and now become the bases of examination of such products by the official laboratory, Foster D. Snell, Inc., of Brooklyn, N. Y. and approval by the association. On the basis of the new specifications, which are modified from the old, a new list of approved


UNITED
LACQUER MFG. CORP.
United's
Quik-Bake
One Minute Baking Enamel
A one-coat operation — no primer necessary. Speeds production tremendously — reduces man hours of labor and cuts finishing production costs. Bakes in 1 minute at 500 degrees in a conveyor oven or in 8 to 10 minutes at 300 degrees F. in standard type ovens.
Made of pure synthetic resins. Bakes to a hard, tough, flexible mar-proof finish. Resistant to grease, dust, acids, alkalis, water and salt spray.
Can be roller coated, sprayed or dipped—available in white and pastel shades.
Quik-Bake is recommended for Refrigerators—Metal Cabinets—Metal Furniture—Metal Venetian Blind Slats—Fluorescent and other Lighting Fixtures—Kitchen Cabinets, etc.
Order 5 gallons of Quik-Bake Synthetic Baking Enamel today and give it a production test.
LACQUERS
THINNERS
SYNTHETICS
METALLIZED FINISHES
SPECIAL COATINGS

products will be issued January 1, 1947, showing those approved on the basis of new examinations completed before that date.

Copies of the new specifications which embody several changes from former editions, together with form for submission of products for examination can be obtained from the official laboratory, Foster D. Snell, Inc., 305 Washington St., Brooklyn 1, N. Y., or from the Association, 332 S. Michigan Ave., Chicago.

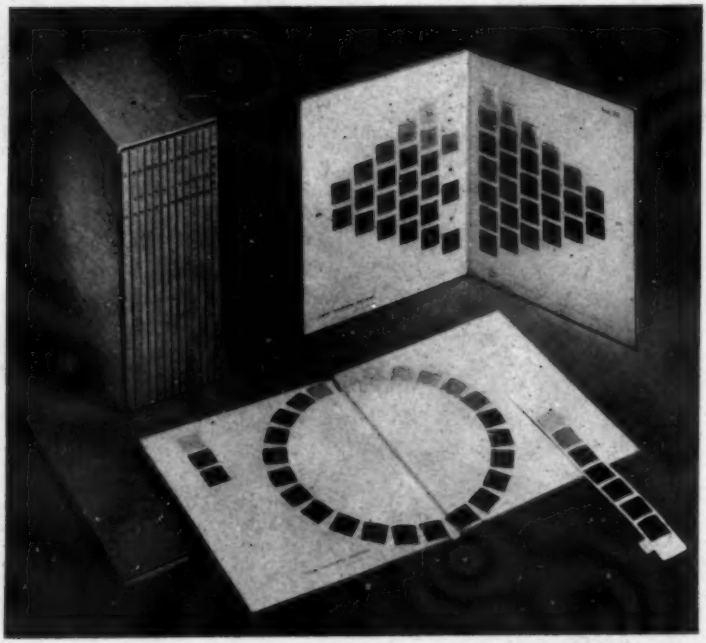
New Color Harmony Manual Now Available

Of interest to all persons who work with color is the publication of a Large Chip Edition of the Color Harmony Manual by Color Laboratories Division, Container Corp., 111 W. Washington St., Chicago 2, Ill. In this, the individual color chips are 1-in. square plus a tab.

The shape of each chip provides a tab on which is printed the complete Ostwald notation for that color. All chips are removable from their positions which are marked accordingly for easy return. Furthermore, the location of any Ostwald notation is evident from a glance at the transparent flyleaf which is printed with all letter notations.

A new feature of the Large Chip Edition is a work chart in which the chips may be arranged for study in circular or linear series. Also included is a 24-page text. It explains the basic Ostwald principles of color order in nontechnical language, and tells how to use them to obtain harmony in color.

The National Bureau of Standards in a recent publication stated that . . . "The Manual is designed, as the name implies, chiefly to promote the knowledge and study of color harmony. Because of the fact, however, that there is a shiny and a dull side to the chips both of which are easily available for comparison with unknown colors, the Manual is exceptionally well suited to serve also as a set of color standards for general use, and it has already achieved considerable acceptance for this purpose."



A "gold mine" for those who study or have occasion to use color harmony.

STERLING *finishes*
for BEAUTY *and* DURABILITY

Complete finishing systems for industry.
Lacquers . . . . Synthetics . . . . Thinners

£ May we send FREE SAMPLES for testing? £

STERLING LACQUER MFG. CO. 3508 Market St. ST. LOUIS 3, MO.

DUPOR
CHEMICAL CARTRIDGE RESPIRATOR No. 10

Worn by thousands to guard against hazardous

PAINT SPRAY FUMES

Ideal protection against paint, lacquer, enamel vapors. Cartridges are of colored plastic. When ordering, specify WHITE for Code A; BLACK, Code B; YELLOW, Code AB. (No corrosion as with metal cartridges—no crushing and spilling chemicals as with paper cartridges.) Price $54 doz.

Sample $4.50 pp.

H. S. COVER
SOUTH BEND, INDIANA

Industrial FINISHING

Distributed monthly to finishing room and paint shop foremen, production superintendents and company officials of metal-working, woodworking and miscellaneous industrial plants where production cleaning and finishing are major operations in parts and products manufacture.

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Published the 18th of each month by PRACTICAL PUBLICATIONS, Inc.
1142 N. Meridian St., Indianapolis 4, Ind.
Telephone.....Riley 6771

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President.....W. H. Rohr
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Subscription Rates Per Year

U. S. and Possessions.....$2.00
Canada and Foreign Countries.....$3.00
(No subscription solicitors are employed)

Editorial

New Products Here

Many products that have come to market recently seemed fantastic to even the postwar planners a few short years ago. Plastics head the list, according to the N. Y. Journal of Commerce. They have come out of the gadget stage to replace metals in machine parts, adhesives in sporting equipment, to gain a place in textiles and household decorations, and to seek a large share of the hundred million dollar toy market.

Magnesium alloys are reducing the weight of new electrical appliances, lawn furniture and garden tools. Aluminum and magnesium canoes, light enough for a child to carry, are ready. Thin aluminum sheets bonded to wood are opening new horizons in building construction.

New office desks, especially designed with colored tops to relieve eyestrain, are being made completely wired for office machines and lamps in order that all floor wires can be eliminated.

Plastic coatings, now offered for immediate delivery, are opening new techniques in industrial packaging, while some of the new consumer goods packaging stresses "sales appeal" and is made of pliable film materials which guard against damage and spoilage, yet are completely transparent.

Oils and Pigments for Finish Materials

"The shortage of oils and pigments precluded a wider sales gain during the first half of 1946, and unfilled orders on June 30th were the largest in the company's history."

This statement, from a large manufacturer's report, is probably typical of the experience of most firms that make and supply finishing materials. In fact the raw materials situation became so critical with certain concerns in July that they decided they would be obliged to discourage any new customers until after conditions improved.

When will the oils and pigments

YOU ASKED FOR IT...

Here it is!

Another
Refresher Course
...on *Organic*
Finishing

Written by an outstanding production authority, a man familiar with the best practices in the industry today, this book covers every phase of the finishing job—from the cleaning of metals to the recovery and re-use of the overspray.

In concise and simple language he tells you not only what to look for in a finish, but what to "look out" for—for consistent, high-quality results. Send for your copy of this valuable *textbook!*

Vedoc

LIQUID PLASTICS DIVISION
FERRO ENAMEL CORPORATION
CLEVELAND 5, OHIO

situation improve? Quoting again from the company report referred to above: "Improvement in the availability of supplies, expected this fall, will greatly benefit manufacturers of protective and decorative coatings." We all hope so.

Recommendations for Product Design

People are again buying civilian goods, and of course they are looking closely for improvements over prewar products. Old designs will not do. However, a too radical change in design or function is a hazard in the immediate postwar period. A progressive, evolutionary development is the logical way for products to improve in appearance.

Naturally, new developments will come; but first must come products improved in appearance, which the public accepts without resistance and which a manufacturer's production department can turn out with a minimum of experimentation.

With design's added importance in mind, Mr. William O'Neil, a New York designer, recommends that a manufacturer judge new designs by eight standards as follows:

1) The new design should definitely improve the product.

2) The changes should not be so radical that they will repel rather than attract.

3) The changed form should not interfere with public recognition and acceptance.

4) It should be possible to start production without delay.

5) The design should be so fundamental that changing tastes will not outmode it and necessitate retooling again in six months.

6) The product should not be so beautiful that the average customer will be afraid to buy it.

7) Nor should it have a cheap, fragile or "temporary" appearance which repels even though the product does a perfectly good job from a utility standpoint.

8) The product should "sell itself," that is conserve sales department energy. It shouldn't have to be "talked up" much, if any.

Balanced Finish for Specific Products

★ In the selection of a certain type of finish we often consider only the shop facilities available and the price of finishing materials to be used. Naturally, this is important, as available facilities for producing the finish, and the materials used, certainly determine the cost of the final finish. But often we overlook the most important requirement in finishing —the "end use" of the finished product.

The future business and progress of any concern is entirely dependent upon acquiring and holding satisfied customers, so it is vitally important that we produce finishes that are properly balanced and in keeping with the product upon which they are used. This we must do if we are to have satisfied customers.

Failure to take into considera-

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Our Technical Service can give valuable aid in difficulties experienced securing these finishes.
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A combination dipping-whirling machine for coating large quantities of small parts. All operations are within the machine. Parts are dipped into coating material, raised and whirled. No additional tanks required. No cleaning when changing colors. Cuts costs and saves up to 90% of material.

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Write for further information or submit samples to be coated.

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tion the "end use" of the finished product may result in getting an unbalanced and short lived finish. For instance, dining room table tops require a finish that is resistant to heat, water and alcohol. If they are finished in some of the cheaper materials that will not withstand the severe use to which they are subjected, the finish breaks down.

In producing a well balanced finish some outstanding property of one material should not be gained at the expense of another material. We should always work out our finishes so that each quality characteristic of the various materials is brought up to a high level of performance. This not only makes for a more durable and well balanced finish, but it enhances the beauty of the finished product.

To produce a well balanced finish is no easy task. Many problems face furniture manufacturers as they plan finishes to meet the proper "end use" of their products.

Many of the larger concerns have their own technical organizations to work with the foreman finisher and supplier of materials, in working out finishes for certain uses. However, consumers of small quantities of materials cannot afford to maintain technical staffs to work out these problems. They have to depend entirely upon their supplier of materials to help them.

Most of the suppliers of finishing materials have adequate laboratory and technical facilities for this type of work and they are vitally interested in helping their customers to work out finishes that are economical, well balanced and practical from an "end use" standpoint.

The user of materials who doesn't have his own technical staff should not hesitate to call on his supplier of finishing materials to help him solve his problems. By this cooperation a well balanced finish that is suitable for any requirement can be obtained.—H. W. CHESTER.

Back to Selling

How quickly "advance orders" can melt away is revealed in the following item from a N. P. V. & L. A. letter dated June 24 of this year.

"1500 'orders' for electric hot-water heaters were on the books of a Philadelphia dealer, but he had to call 500 of these 'customers' to dispose of the first 35 heaters delivered to him, says 'National Affairs.' That's another indication that things—including your products—will soon have to be sold . . . ."

Anyway, this is something to think about—and perhaps temper the rosy picture of so many advance orders for future delivery of certain products.

Get More Goods of Quality on the Market

★ Anything that will put consumer products (that is, quality products) on the market even one day sooner deserves recognition. Shortages of raw materials are still a thorn in the side of industry. Work stoppages, in some cases, seem to be unavoidable.

A considerable volume and variety of products are being produced by manufacturers who have found it possible to use sizes and substi-

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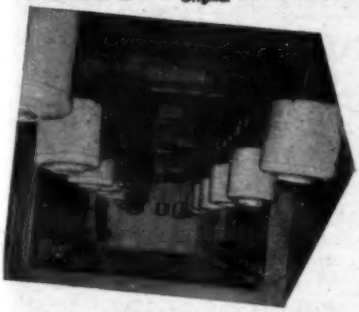

Here again, as in the innumerable other cases previously presented, Burdett Infra-Red Gas Burners have reduced drying time approximately 70 per cent as compared with indirect-fired drying. In this Gray Company, Inc., Minneapolis installation the prime coat is run at 235° F., for 11 minutes and the finish coat at 265° F., for 11 minutes. These startling results are common practice with Burdett Burners. These same revolutionary results are possible in your drying, baking, roasting and cooking —metal melting and annealing operations—ask for complete information.

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tute materials which were being held as surplus materiel.

To avoid work stoppages, group and individual wage incentive plans are being installed in some places. These plans, properly set up and maintained, do promote and pay for production; employees take home more money and management gains through lowered costs and a greater volume of sales—and, of equal importance, more consumer goods are made available. The greatest safeguard against inflation is to make available greater quantities of products that people need to buy.—B. P.

Check Sprayability of Finishing Materials

★ One of the features which should be considered in a survey of finishing methods, but which is seldom discussed, is "sprayability." Sprayability may be defined as that property of a paint material which determines the speed and quality at which that material may be applied. Of course, some spray coatings are deficient because they sag, or are sprayed too dry, etc. But comparing two materials, both of which give a satisfactory job after they have been dried or baked, the expert finishing foreman can still differentiate between the "sprayability" of the two different materials. He will note that some materials cannot be sprayed at a rapid rate. Other materials may be sprayed as fast as the operator's skill and technique allows.

In these days of rising costs, when foremen and executives alike are vitally concerned with getting more production without over-working their men, it would seem that an investigation of the "sprayability" of paint materials would be in order. By wise selection of the proper spraying equipment, surface coating material and *reducer*, it may be found that the time required to spray a given article can be materially cut down without adversely affecting quality or employee relations. A speed-up of this kind might prove advantageous to spray men who are on a piece-work or bonus arrangement.

To the finishing foreman who thinks that he could improve production in the spray room by improving the "sprayability" of his finishing materials, I suggest that he consult his finishing material supplier and get together with that firm's technical staff. His efforts are almost sure to be rewarded by the increased productivity of his department—MAG.

Value and Reward Your Key Men

★ Top executives in every firm should make a sincere effort to evaluate their supervisory help from time to time. Points to be considered in this man-inventory are the increased value to the firm of key men, such as supervisors, managers, foremen, head clerks, and those with other titles who are in the key man category. I say "increased value" because it must be taken for granted that very few companies will keep a man at an important post in their production set-up unless he can show he is an asset in his particular position.

Not every key man can be made a member of the firm's board of directors or an officer in the cor-

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for paint, varnish, lacquer, baked enamel, adhesives

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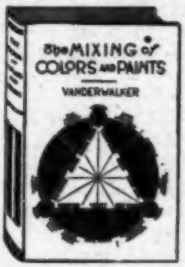

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poration, but where a man has held a position as, let us say, Superintendent of Finishing and has created designs and "selling" finish combinations for ten years or more, and has been the main guiding spirit in production flow and up-to-the-minute efficiency, it is my opinion that a man with those executive qualifications should be made an officer in the firm and should be allowed to sit in and have a voice in the top management process. To deny this rating to such a man is an invitation to some competitor, who is a go-getter, to relieve you of the main cornerstone in your organization.

Foremen and key men of a lesser rank can be given morale buildups by paying them some kind of a bonus or what's more important, a little more salary.

A meeting for constructive vocal suggestions by key men should be held at least once a month. The chairmanship of each meeting should be given to a different key man. One or more members of top management may sit on the side lines; and there should be a stenographer present to take the proceedings down and send each one present a transcript of what took place.

There should also be a Bull Session once a month in which all key men can let loose of accumulated steam without restriction and without being afraid that some top man will penalize them. These meetings should be held on company time and not during lunch hours or after working hours.

With two meetings held every month and with relationship closer between top management and key men—perhaps with a vice presidency the reward to a real worthy and valuable man, and morale

building presentations at various times to other key men—an organization can maintain its snap and productivity and take on all comers in competition.—Cal.

Far West Business; Faster Deliveries

★ During times of extreme shortage in available rail facilities, many retailers on the west coast did their bit in cooperating with manufacturers in the east and central states by accepting shipments that at times took several months to reach them. Even today, with the availability of more shipping space, it still takes three or four weeks to get a finished product delivered across the country. Counting in the time spent in mailing the order, and the manufacturer's processing of the order after it has been received and acknowledged, a total of an extra week or ten days is added to the actual transportation time.

Gradually but ultimately this long period of waiting for merchandise is going to cause a larger percentage of west coast business to go to local plants. Although many factory executives will say that they are doing the best they can, their west coast sales will not be maintained. It is wiser to face the issue squarely and consider ways and means of getting merchandise to the west coast faster, before most of that purchasing power is squandered in taverns and for other forms of amusement.

Warehousing in a central west coast location is about the

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only real solution. Deliveries to stores within 24 or 48 hours, will get you the available business, but deliveries that take three, four and five weeks will lose business for you. There is unlimited delivery facilities in most towns, such as direct by truck, boat, by rail and truck, or by express.—N. ABRAMOVICE.

Editor's Note: Perhaps air shipments are the solution. Following is part of a news release from United Air Lines:

"The lowest freight rates in the history of scheduled common carrier air lines have been set up by United Air Lines for movement of volume shipments over its coast-to-coast and Pacific Coast system.

"In an air freight tariff filed with CAB, United shows rates as low as 17½ cents a pound on volume shipments of 16,000-lbs. across the country. The rates are scaled to decrease as the volume increases from the present 3000-lb. load up to a maximum of 16,000-lbs.

"A feature of the tariff is a provision to allow a shipper the volume rates on the total poundage of individual shipments made in any 24-hour period.

"Adoption of the low tariff schedule comes as a result of United's experience in tailoring its air freight operations to suit the needs of shippers. Many freight categories now are moving across the country each day in volume lots, including ready-to-wear garments, vital parts for manufacturers, flowers, fruits and vegetables."

High Morale in Your Finishing Room

★ More and more executives are finding out, the hard way, the importance of maintaining a first class finishing department in their plants. Those who at one time or another had looked at the finishing department and its personnel as a step child are now finding out that the main profits at the end of the year flow from the finishing

department. I know of one plant in particular where the difference between profit and loss—between being a leader in the industry or a non-entity—lay in a closely-knit efficient finishing department. In this department the superintendent has welded together a trim neat group of foremen. He spent a great deal of time with the foremen and other skilled and semi-skilled personnel.

This led to loyalty which, in turn, led to a natural desire on everyone's part to do the best possible work. All concerned gained by this type of teamwork. The skilled and semi skilled laborers were well paid and happy. The foremen, shown that the management had confidence in their judgment, were always on the alert for fresh ideas and methods. The superintendent, having a dependable group of men working for him, has continuously come out with new ideas in styling and color combinations. This is a true fact.

It is just a method of demonstrating the right of the finishing department to be allowed reasonable leeway in its efforts to bring home the bacon. Hot-headed bosses can destroy the finishing department morale in a very short time. Smart executives will not destroy the goose that lays the golden eggs.—N. A.

Making Sure of New Equipment Results

Due to the stress of present day conditions, where shortages of materials is the rule rather than the exception, many manufacturers have been forced to purchase equipment, as well as mate-

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(452 Pages)

Descriptions of modern finishing materials and equipment for their application, drying and conveying are presented so that the reader may have an over-all picture of modern industrial finishing operations. Throughout, the main emphasis is on proper selection and use of materials and equipment to get the best possible finish at minimum cost.

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rials from several different sources. It is easy to fall into the habit of buying one piece here and one piece there, especially if the single and logical source of supply cannot complete delivery as soon as we would like. This policy is commendable for unrelated items of equipment—but that is where it should end.

For inter-related equipment such as conveyors, ovens, humidifiers and controls, there should be one source and one responsibility. Of course one firm may supply the conveyor while another company builds the ovens, and the controls may come from still another; but the responsibility of coordinating the operation of the combined system, so that it will produce the quality of finish and meet the production demands of the manufacturer, must rest with one company.

Any manufacturer who elects to rely upon his own organization to select and install various and sundry pieces of inter-related equipment which, when combined into one system, requires meticulous control to insure succesaful operation may be letting himself in for a lot of trouble. There are firms who have the engineers, experience and practical know-how to do this job. They will accept full responsibility and they are qualified to give you something practical, economical and satisfactory.

Automatic Heat Control Bulletin

A 4-page folder which illustrates and describes automatic timing control devices and equipment, is being distributed by Automatic Temperature Control Co., Inc., 34 E. Logan St., Philadelphia 44, Pennsylvania.

Belt Conveyor Idlers

A new 26-page bulletin on the complete line of Rex Belt Conveyor Idlers is now obtainable from Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wisc. Photographs, tables, charts, diagrams and cutaway views are used profusely to show and describe the items.

The first section of the book takes up the proper selection of idlers. Then follows a large two-page cutaway illustration showing details of construction of Rex Idlers. Included in the book are photos and illustrations of the two newest Rex Idlers—the Impact-Cushioning Troughing Idler and the Rubber Covered Spiral Return Idler.

What Certain Lacquers and Paints Are Made Of

A new booklet (40 pages 8½x11-in.) listing Hercules chemicals and more than 50 industries which utilize these products, is now available from Hercules Powder Co., Wilmington, Dela. The products are first indexed according to various industries in which the chemicals and explosives are used, and then according to chemical families.

An indication of many applications for Hercules chemicals in plastics, paints, textiles, film, adhesives, paper, rubber, and insecticides is given in the new booklet.

Chemicals discussed in the booklet include the cellulose family, rosin family, synthetic resins, terpene solvents and chemicals, chlorinated products and many special products.

Sherwin-Williams Co. Opens New Laboratory in Tacoma

The Sherwin-Williams Co., recently opened a new field service laboratory at 2301 Taylor Way, Tacoma, Wash., to assist manufacturers of plywood panels, doors and other wood products with their technical problems relating to the application of wood sealers and other industrial coatings.

The new laboratory will be used to test wood finishes, develop new color combinations, analyze customers' woods, and to assist manufacturers in planning new industrial wood uses and manufacturing production lines. All work will be coordinated with the Los Angeles and Oakland Technical Service Departments and Sherwin-Williams general furniture Technical Service Department in Chicago.

The laboratory is under the direction of E. A. Gross, a wood technologist eminently qualified for this specialized work.

We will purchase and/or have reclaimed paint overspray from water curtained spray booths. Any type paint, enamel or lacquer is acceptable.

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Substitute Materials Fireproof Building

Inasmuch as it is highly desirable that finishing rooms, paint shops and storage rooms be fireproof in the interest of safety, the story of a recent factory addition being built without lumber isn't so unhappy after all.

This manufacturer needed a new building for storage purposes. Lumber in the sizes and quantities required was not available at any price. Wood frames and wood sash were also on the impossible list; but he wasn't stopped. He erected the building without the use of any wood—and it is fireproof.

Concrete footings and piers support a reinforced concrete slab floor. Concrete blocks form the walls. Steel purlins and rafters support light weight concrete composition slabs which form the roof base for a built-up roof. Factory steel sash provide light and ventilation.

Several types of concrete composition materials are available for light weight roof slabs. This concern tried to buy the roof slabs but again delivery promises were uncertain. The company made forms and poured the necessary slabs. Steel angles extending around the eave line give additional support to the slabs.

This building of substitute construction is complete and in use. Of course many difficulties and obstacles appeared to harass the builder, but there is pride in accomplishment and a great deal of satisfaction in overcoming obstacles. This manufacturer now has a fireproof building equipped with sprinkler system and a consequent saving in fire insurance rates which will prevail as long as the building is used.